MARINE HOSPITAL SERVICE
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U. S. MARINE HOSPITAL BUREAU, WASHINGTON, D. C.

Treasury Department. Marine-Hospital Service.

ANNUAL REPORT

OF THE

SUPERVISING SURGEON-GENERAL

OF THE

MARINE-HOSPITAL SERVICE OF THE UNITED STATES

FOR THE

FISCAL YEAR 1895.

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TREASURY DEPARTMENT.
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MARINE HOSPITAL SERVICE
1798 U S 1871

OPERATIONS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE.

1895.

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REPORT TO THE SECRETARY.

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL, M. H. S.,
November 1, 1895.

HON. J. G. CARLISLE,
Secretary of the Treasury.

SIR: I have the honor to transmit herewith the report of the Marine-Hospital Service of the United States for the fiscal year ended June 30, 1895, being the twenty-fourth annual report of the Service and the ninety-seventh year of its existence.

In addition to the statistical information pertaining to the fiscal year, the operations of the Service to the present date, being near the close of the quarantine season, are included.

MEDICAL CORPS.

During the fiscal year no board was convened for the examination of applicants for admission into the Medical Corps, there being no vacancy. Twenty applications are on file for permission to appear before the next examining board.

Appointments and promotions.

One successful candidate was appointed to the grade of assistant surgeon and four assistant surgeons were promoted after examination to the grade of passed assistant surgeon.

Casualties.

No deaths have occurred. The passed assistant surgeon mentioned in the last Annual Report as having been placed upon waiting orders because of tuberculosis, has transmitted certificates showing no improvement. Of the two assistant surgeons incapacitated by the same cause, one has been continuously on waiting orders, and the other, after reassignment to duty at San Diego, and nearly a year's freedom from evidence of the disease, reported a recurrence thereof, and is at present on leave of absence.

MEASURES FOR THE RELIEF OF THE LEGAL REPRESENTATIVES OF ASST. SURG. JOHN W. BRANHAM.

Notwithstanding the bill for the relief of the legal representatives of Assistant Surgeon Branham was favorably reported by the Committee on Claims in the House of Representatives, and there was no opposition thereto, it was not acted upon by Congress. I beg leave to refer to the Annual Report for 1894 (pp. 9 to 12, inclusive), which contains a full statement of the propriety and justice of the proposed measure, and to pages 10 to 12, inclusive, of the Annual Report for 1892, containing a list of officers who have sacrificed their lives in their efforts to prevent the invasion or spread of epidemic diseases. I would call attention to the fact that these officers were engaged in protecting not their own States or localities, but at points remote from their own homes, were performing their duties in the interest of the whole country.

I believe that Congress will yet recognize the justice of providing for the families of these men by the payment of a sum equivalent to their salaries and allowances for two years, a precedent for which is found in the act of March 4, 1882.

CERTIFICATES TO BE FURNISHED CONCERNING CHARACTER AND CAPACITY OF MEDICAL OFFICERS APPLYING FOR PROMOTION.

For the double purpose of stimulating the younger officers of the Service to establish an excellent record, and of furnishing information to boards convened for the examination of candidates for promotion the following form has been issued:

Information required of commanding officers, Marine-Hospital Service, concerning candidates for promotion.

Form No. 161.]

Treasury Department,
Office of Supervising Surgeon-General, M. H. S.,
Washington, D. C., October 5, 1895.

To medical officers of the Marine-Hospital Service:

Commanding officers, under whom medical officers and hospital stewards of the Marine-Hospital Service have served, are required, when said officers and stewards are candidates for promotion, to answer the following interrogatories by the Supervising Surgeon-General, M. H. S., in accordance with paragraph 14, Regulations, Marine-Hospital Service, 1889.

Walter Wyman,
Supervising Surgeon-General M. H. S.

Approved:
Charles S. Hamlin, *Acting Secretary.*

Interrogatories addressed to ——— ———, U. S. Marine-Hospital Service, regarding the mental, moral, and professional fitness of ——— ———, U. S. Marine-Hospital Service, during their service together at ———, from ———, 18—, to ———, 18—.

1. What was the professional ability of ——— ———, U. S. Marine-Hospital Service, during the period stated?

2. What duties were performed by said officer or steward during the period stated, and for what length of time did he perform each duty?

---

3. In what manner did said officer or steward perform each of these duties?

---

4. Did said officer or steward exhibit zeal, intelligence, and judgment in dealing with attendants and patients during the period stated?

---

5. What special duties, other than the ordinary routine duties of his position, were performed by said officer or steward during the period stated, and how was each of such duties performed?

---

6. What was the general conduct and bearing of said officer or steward during the period stated?

---

7. Was said officer or steward given to habits of intemperance at any time during the period stated; if so, to what extent?

---

8. From your knowledge of said officer or steward and the service he performed during the period stated, do you consider him mentally and professionally fit to perform all his duties in a higher grade?

---

9. From your knowledge of said officer or steward, do you consider him morally fit for promotion to the next higher grade?

---

10. What was the general condition of the health of said officer or steward during the period above stated?

---

11. Considering the possible requirements of the Marine-Hospital Service in time of epidemics, do you consider said officer fit to be entrusted with important independent duties? If not, state reasons? (This question does not apply to hospital stewards.)

I certify on honor that I believe the above entries made are true and impartial.

——— ———,
U. S. M. H. S., in command.

(Name of station) ———.
(Date) ———.

OFFICERS DETAILED TO ATTEND MEDICAL AND PUBLIC HEALTH ASSOCIATIONS.

During the fiscal year, and to date of this report, officers were detailed to represent the Service at the Eighth International Congress of Hygiene and Demography in Budapest, and at the meeting of the American Public Health Association in Montreal, as reported in the previous Annual Report.

Surgeon Stoner and Passed Assistant Surgeon Kinyoun were detailed to represent the Service at the meeting of the American Medical Association at Baltimore, April 25, 1895.

Passed Assistant Surgeon Kinyoun was detailed to attend the Convention of Bacteriologists in New York, June 21, 1895. His report is included in the report of the hygienic laboratory.

Surgeon Bailhache and Passed Assistant Surgeon Kinyoun were detailed to attend the meeting of the American Public Health Association in Denver, September 24, 1895.

REPORT OF SURGEON P. H. BAILHACHE UPON THE MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION IN DENVER.

PORT OF NEW YORK, N. Y., *October 11, 1895.*

SIR: In accordance with Department letter of the 24th ultimo, detailing me to represent the Service at the meeting of the American Public Health Association, which convened in Denver on the 1st instant, I have the honor to report that I was present each day during the meetings of the association, and with my colleague, P. A. Surg. J. J. Kinyoun, participated in its deliberations, which were varied and interesting, comprising sanitary and hygienic subjects, under the following heads: "The Mississippi River as a sewer;" "Report of the committee on animal diseases and animal foods;" "Car sanitation;" "The ventilation of railway coaches;" "Report of committee on car sanitation;" "Municipal steam disinfection;" "Disinfection in American cities;" "Microscopic diagnosis of diphtheria by a new staining method;" "Suggestions as to ocular hygiene in the schools;" "Outlook for a general system of registration of vital statistics in the United States;" "National legislation for the care of public health;" "Bacteriological results from mechanical filtration;" "Medical inspection of schools;" "Report of committee on disposal of the dead;" "Disposal of the dead with special reference to the prevalent practice of embalming;" "Cremation or earth burial, which?" "Influences peculiar to high altitudes upon sanitary conditions;" "Report of the committee on the abuse of alcoholic drink from a sanitary standpoint;" "Degenerative heredity, or some degenerative influences of modern civilization on health;" "A plea for the more intelligent management of phthisis pulmonalis;" "Smallpox in Wisconsin from January, 1894, to June, 1895;" "History of the milk and dairy inspection law of Minneapolis, Minn., enforcing the tuberculin test for tuberculosis."

The following nine concluding papers were in the Spanish language: "The study of yellow fever in connection with its medical geography and propylaxis on the Mexican Republic;" "Prophylaxis of yellow fever;" "Necessity for the establishment of Sanitoria to prevent chlorosis as the best prophylactic against consumption in particular and constitutional diseases in general;" "Baths, their necessity, their influence in economy, the dangers they present, and the methods of preventing them;" "Measures which ought to be adopted for limiting the consumption of impure alcohol as a beverage;" "Railroad hygiene;" "Necessity and desirability of popularizing the study of hygiene;" "Relation of hygiene to abortions and stillbirths;" "Influence of the poorer classes in the cities—education in public-health matters the best prophylactic against typhus."

Only four out of thirteen of the last papers were read owing to pressure of time. The election of officers concluded the proceedings of the association, which adjourned to meet in Buffalo, N. Y., next year.

There was no discussion of the paper on "National legislation for the care of public health," which contained a plan for obtaining money from the United States Treasury based on a somewhat similar scheme to that of the law for the prevention of tuberculosis and pleuro-pneumonia in cattle. The most interesting subjects discussed were those relating to bacteriology and its relations to various preventable diseases.

Very respectfully,

PRESTON H. BAILHACHE,
Surgeon, Marine-Hospital Service.

The SURGEON-GENERAL U. S. MARINE-HOSPITAL SERVICE,
Washington, D. C.

MEDICAL BOARDS.

A medical officer has been detailed to serve on the board convened by request of the committee of the Senate appointed by resolution of December 14, 1893, with a view to compensating persons injured, or representatives of persons killed, in the Ford Theater disaster. The board, consisting of three medical officers, one each from the Army, Navy, and Marine-Hospital Service, has not been dissolved, but is still subject to the call of the Senate committee.

A board consisting of a medical officer of the Marine-Hospital Service, the commanding officer of the revenue cutter stationed at Wilmington, and a representative of the State board of health of North Carolina, was convened in September, 1894, to select a quarantine site near Southport, N. C., under the provisions of the act of Congress approved August 18, 1894.

RETIRING BOARD FOR REVENUE-CUTTER SERVICE.

In accordance with the act of Congress approved March 2, 1895, a board of surgeons of the Marine-Hospital Service was appointed to carry into effect the provisions of said act. Following are letters from the Acting Secretary of the Treasury requesting me to designate the officers and to submit suitable regulations, my reply, and an order from the Secretary inclosing a copy of the President's order:

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., March 20, 1895.

SIR: The act of Congress approved March 2, 1895, provides for the convening of a board of surgeons of the Marine-Hospital Service to examine and report upon all officers of the Revenue-Cutter Service who, through no vicious habits of their own, are now incapacitated by reason of the infirmities of age or physical or mental disability, efficiently to perform the duties of their respective offices. You are directed to select three medical officers of the Marine-Hospital Service who can most conveniently be spared for the duty to compose this board, and submit their names to the Secretary of the Treasury.

You will please prepare and submit suitable regulations, fixing a standard of physical fitness to which each officer examined must attain, in order to entitle him to retain his position on the active list of officers of the Service. You will confer with Capt. C. F. Shoemaker, Chief of the Division of the Revenue-Cutter Service, in relation to this matter.

Respectfully, yours,

C. S. HAMLIN,
Acting Secretary.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 23, 1895.

SIR: I have the honor to acknowledge the receipt of your letter of the 20th instant directing me to select three medical officers of the Marine-Hospital Service who can most conveniently be spared for the duty required by act of Congress approved March 2, 1895, and submit their names to the Secretary of the Treasury.

In accordance therewith I have to submit the following names of surgeons to be convened as a board by the President for the purpose specified, namely: Surg. George Purviance, Marine-Hospital Service, chairman; Surg. H. W. Austin, Marine-Hospital Service, and Surg. H. R. Carter, Marine-Hospital Service, recorder.

I have the honor to remain, respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

The SECRETARY OF THE TREASURY.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 26, 1895.

SIR: In further compliance with your letter of March 20 I have prepared and submit herewith regulations to guide the board to be appointed by the President for the purpose of determining the physical fitness of revenue-cutter officers to retain their position on the active list as provided for in the act of Congress approved March 2, 1895. Signature to these instructions is withheld until after the board shall have been appointed by the President.

Respectfully, yours,
WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Hon. C. S. HAMLIN,
Acting Secretary of the Treasury.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., April 8, 1895.

SIR: Herewith are transmitted Department orders of this date to Surgs. George Purviance, H. W. Austin, and H. R. Carter, of the Marine-Hospital Service, directing them to report in person at the Department on Friday, the 12th instant, to act as a board for the physical examination of certain officers of the United States Revenue-Cutter Service, and you are requested to forward said orders to their proper destination.

Herewith is inclosed for your information a copy of the President's order of this date convening the board.

Respectfully, yours,

J. G. CARLISLE, *Secretary.*

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.]

EXECUTIVE MANSION,
Washington, D. C., April 8, 1895.

GENTLEMEN: You are hereby designated, under the provisions of the act of Congress approved March 2, 1895, to act as a board to physically examine certain officers of the United States Revenue-Cutter Service, and you will convene at the Treasury Department, in this city, during the forenoon of Friday, April 12, 1895, "to examine and report upon all officers now in the Revenue-Cutter Service who, through no vicious habits of their own, are now incapacitated by reason of the infirmities of age, or physical or mental disability, to efficiently perform the duties of their respective offices." You will receive detailed instructions from the Secretary of the Treasury.

GROVER CLEVELAND.

Surg. GEORGE PURVIANCE (Chairman), Surg. H. W. AUSTIN, and Surg. H. R. CARTER (Recorder), of the *Marine-Hospital Service.*

The board, in the performance of its duties, found it necessary to visit several cities and to proceed as far west as San Francisco, inasmuch as a number of the revenue-cutter officers to be examined were unable physically to meet the exigencies of travel. A summary of its operations will be found on page 18.

AID TO OTHER BRANCHES OF THE GOVERNMENT SERVICE.

(1) *Aid to the Life-Saving Service.*—During the year ended June 30, 1895, there were 1,203 keepers and surfmen examined, of which number 70 were rejected for physical causes; claims for pensions and other benefits provided by the act of May 4, 1882, made by keepers and crews of the Life-Saving Service have been passed upon in the office of the Surgeon-General.

The following letter relative to the physical condition of surfmen in the Life-Saving Service was referred by the acting general superintendent to the Bureau for an expression of opinion:

LIFE-SAVING SERVICE,
OFFICE OF ASSISTANT INSPECTOR ELEVENTH DISTRICT,
Custom-House, Chicago, Ill., May 21, 1895.

SIR: I respectfully submit the following for your consideration:

At the opening of the active season the instructions contained in paragraph 81, Revised Regulations, relative to medical examination of surfmen, were complied with, and in two instances men were rejected on account of heart trouble. Both of these men are young and had been in service several years, have excellent records, and, until pronounced unfit for further service by the examining physician, had no idea of any such trouble.

The fact of these young men being stopped in their career so suddenly and without warning led me to investigate the matter and to ascertain, if possible, the cause, and I conclude it to be a lack of that hard physical exercise necessary to the proper condition of men called upon for work such as is found in the Life-Saving Service.

For the most part the crews are composed of men of long service, and who are familiar with the details of drill, etc. Certain hours are given up to boat practice. The boat is taken out at those times, and the men are exercised at the oars in short-distance pulls, and at turning, backing, going ahead, etc.; and owing to the men being expert oarsmen, the keeper, in most cases, does not consider it necessary to work his crew for long-distance rowing, and is satisfied with the moderate exercise. From their way of living the crew generally grow fat, and consequently they are not in the best condition for heavy and rapid work in rough water; but when the time comes for a long pull to windward, in a gale of wind, all their energy and strength is put out, and when they arrive at the wreck they are beaten out, and the great strain upon the heart action by the rapid and unnatural motion causes, in my opinion, the trouble spoken of here.

To overcome this to a great extent, I would recommend that an order be issued from your office increasing the hours of boat practice, and that the exercise be as rigorous as the weather and other conditions will permit.

Very respectfully,
W. S. BALDWIN,
Lieutenant and Assistant Inspector.

GENERAL SUPERINTENDENT U. S. LIFE-SAVING SERVICE,
Washington, D. C.

The following indorsement was made upon the above letter:

Respectfully returned to the General Superintendent United States Life-Saving Service, with a favorable opinion upon the suggestions herein contained, with the following modification: It is believed that frequent exercise—say daily—not excessive in character, will be more beneficial than very severe exercise at either irregular or long intervals. It is suggested that the daily exercise required should not be omitted in stormy weather, but that in said weather it could be taken on shore, and consist of rapid walking or running.

(2) *Aid to the Inspection Service of Steam Vessels.*—During the year 1,255 pilots were examined with regard to their ability to distinguish colors and 51 rejected on account of color-blindness.

It is pertinent to add here that, although the rule adopted by the Board of Supervising Inspectors of the Steamboat Inspection Service requires only that the marine-hospital officer shall certify to the ability to distinguish colors, it has been the custom of officers to note on the blank any other marked defect of vision or of hearing. Inquiry having been made by one of the officers as to the propriety of rejecting applicants for pilots' license when examined as to eyesight and found to have marked defect of vision, although possessed of proper color sense, the letter was referred to the Supervising Inspector-General of Steam Vessels, who replied by indorsement, as follows:

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING INSPECTOR-GENERAL OF STEAM VESSELS,
Washington, D. C., September 19, 1895.

Respectfully returned to the Supervising Surgeon-General, Marine-Hospital Service, with the opinion that all defects of vision noted on examination blanks should be filled in by the examining surgeon and that they should be so instructed, leaving it to the discretion of the local inspectors as to what weight shall be given thereto in licensing pilots, the rules requiring them to act for color-blindness only.

J. A. DUMONT,
Supervising Inspector-General of Steam Vessels.

Further consideration given to the matter of certificates of visual inspection appears in the following letter addressed to the Supervising Inspector-General, October 5, and in his reply, October 21:

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 5, 1895.

SIR: Concerning examination of applicants for pilot's license by the officers of this Service, I beg leave to refer to my request, September 17, 1895, to be informed whether you desire that other defects of vision in addition to color-blindness should be noted in the certificate furnished. Your reply under date of September 19 states that in your opinion "all defects of vision noted on examination blanks should be filled in by the examining surgeon, and they should be so instructed, leaving it to the discretion of the local inspectors as to what weight shall be given thereto in licensing pilots, the rules requiring them to act for color-blindness only."

An examination of your blank form 2153, "Application and Certificate of Visual Inspection of Pilots," shows that the request forwarded by the United States local inspectors is for an examination only of ability to distinguish colored lights. The certificate to be signed by the officer of this Service, printed on the same blank calls for a statement that he has no defect of vision.

It is obvious that the request made by the United States local inspector upon the marine-hospital surgeon should be made to include a general visual examination, and I would suggest that your opinion of September 19, as above quoted, be included in instructions to the local inspectors, and that the latter be directed to add to the blank form of request for examination the following words: "and note any defect of vision."

If this is done no special instructions need be given to marine-hospital officers, as the blank certificate covers all that is desired.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

The SUPERVISING INSPECTOR-GENERAL OF STEAM VESSELS,
Treasury Department.

TREASURY DEPARTMENT,
STEAMBOAT-INSPECTION SERVICE,
OFFICE SUPERVISING INSPECTOR-GENERAL,
Washington, D. C., October 21, 1895.

SIR: In answer to your letter of the 5th instant, suggesting amendment to Form 2153, you are informed that as soon as the present stock of blanks is exhausted we will print new ones, amended as suggested.

Respectfully, yours,

JAMES A. DUMONT,
Supervising Inspector-General.

The SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE,
Washington, D. C.

CORRESPONDENCE RELATIVE TO EXAMINATION OF THE HEARING OF PILOTS.

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 30, 1895.

SIR: Referring to your letter of October 21, in which you state that as soon as the present stock of blanks is exhausted you will print new ones, amended in accordance with suggestions from this office, I have also to invite your attention to the necessity for an examination of the hearing of pilots applying for license. I believe that this matter will commend itself to you, and would respectfully suggest that the matter be brought to the attention of the next meeting of the board of local supervisors for such action as they may see fit to take in the premises.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Servvice.

The SUPERVISING INSPECTOR-GENERAL OF STEAM VESSELS,
Treasury Department.

TREASURY DEPARTMENT,
STEAMBOAT-INSPECTION SERVICE,
OFFICE SUPERVISING INSPECTOR-GENERAL,
Washington, D. C., October 31, 1895.

SIR: The receipt of your letter of the 30th instant, relating to the examination of the hearing of pilots who are applying for license, is hereby acknowledged, and you are informed that I will bring the matter to the attention of the Board of Supervising Inspectors, and recommend favorable action.

Respectfully, yours,

JAS. A. DUMONT,
Supervising Inspector-General.

The SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE,
Washington, D. C.

(3) *Aid to the Revenue-Cutter Service.*—Three hundred and ninety seamen were examined physically prior to enlistment in the Revenue-Cutter Service, of which number 67 were rejected. Forty-three candidates for position of cadet, assistant engineer, and third lieutenant were examined physically, and 6 rejected. Eighty-eight officers were examined for promotion, and 5 for special reasons. Under the retiring act of March 2, 1895, 42 officers were examined and 39 reported for retirement. Seventeen boards have been convened for the physical examinations above referred to. Special mention is made of these boards because of the extra labor involved by detaching from regular and important stations the surgeons detailed and the increased work thrown upon the Bureau, inasmuch as most of the boards for the examination of candidates for admission and promotion were composed, for the sake of economy, of officers on duty in Washington, and while thus serving their work necessarily devolved upon other officers in the Bureau. An officer was detailed for duty on the revenue-cutter *Rush* during her cruise in Bering Sea.

Acknowledgment is due to the Revenue-Cutter Service for assistance rendered in transferring the quarantine steamer *Woodworth* from the Delaware River to Norfolk, Va., and the immigrant transfer barge from Cape Charles to Delaware Breakwater. Also for conveying medical officers to several quarantine stations and aiding in the location of the quarantine station at Southport, N. C.

(4) *Aid to the Immigration Service.*—Medical officers of the Marine-Hospital Service have been specially detailed at the following ports for medical inspection of immigrants, namely: Boston, New York, Philadelphia, and Baltimore. The regular officers on duty at other ports are available for this service when occasion requires. Following is a summary of the reports received, showing number of immigrants inspected during the fiscal year 1895:

Boston, Mass.—Number of immigrants inspected, 20,377; returned, 126. Of the 126 returned, there were 3 idiots; 1 insane; and 16 contract laborers.

New York, N. Y.—Number of steerage passengers inspected upon arrival, 216,782; of these there were physically examined and sent to hospital for treatment, 885; rejected and sent before the board of special inquiry for action, 73; certified and sent before the board of special inquiry for action, 336; recorded (minor defects), 3,512; number of landed cases applying for relief, 423; of these there were physically examined and sent to hospital for treatment, 316; certified for deportation and sent to hospital awaiting return, 56; remained in city awaiting return, 10; rejected (no case for the medical department), 87.

Philadelphia, Pa.—Number of immigrants inspected, 26,327; number of visits made to hospitals and other places during the fiscal year to examine into the physical condition of immigrants and make recommendation as to disposition in each case, 216.

Baltimore, Md.—Number of immigrants inspected, 7,573; detained in hospital temporarily, 11; rejected, 3.

MARINE HOSPITALS AND RELIEF FURNISHED.

During the fiscal year ended June 30, 1895, the total number of patients treated by the Service was 52,643, of which number 12,962 were treated in hospital, the remainder, 39,681 being dispensary or out-patients. Seventy-two seamen of the merchant marine were examined before shipment as to their physical fitness and none were rejected.

The following is a statement of repairs and alterations made during the fiscal year and of repairs and alterations still needed at the several marine hospitals:

Hospital at Baltimore, Md. (*erected 1887*).—Surg. George W. Stoner makes the following report of repairs and improvements at this hospital station:

The chief item of repairs was the connecting of water from the city main to the hospital buildings, Healy & Bro., contractors, at a cost of $929 for work of original specification, and $123 for additional contract work of constructing sinks and lavatories, and $65.30 for extra work not included in the specification of contract.

Repairs to woodwork and plastering, including new work in necropsy room, were made during the year, at a cost of $272.20, including labor and material; a considerable portion of the labor was performed by the hospital attendants.

The water supply of the hospital building is now sufficient, and is so arranged that the old cistern supply can be used as before for the closets and lavatories of the wards and for the laundry, or the water from the city main can be turned on and supplied to all the buildings, thus assuring for the first time in the history of the hospital a sufficient water supply the year round.

Two fire plugs have been put in, one on the lawn between the surgeon's house and the executive building, and one between the executive building and the kitchen and laundry buildings, and a sufficient quantity of hose furnished, at a cost of $184.50; and three street washers have been placed along the front terrace and one near the center of the grounds.

Three laundry tubs have been put in cellar of surgeon's house and connected with steam pipe from boiler house.

The basement space at rear of third ward (or west ward as it is called on hospital plan) has been converted into a necropsy room with slate mopboards, lavatory, and sink, with steam heat and gas.

A lavatory and sink (marble with nickel trimmings) has been put in the operating room, an iron sink in the dispensary and one in the assistant surgeon's quarters. The several places mentioned were not previously supplied with sink and lavatories.

The woodwork of the verandas and connecting corridors has been repaired at numerous places, and the porches on the rear of the wards have been renewed and some repairs made to inside woodwork.

Material for repairs to heating apparatus was furnished during the year at a cost of $106.30.

The following improvements are necessary, and should not be longer delayed: Repairing and painting interior of buildings, including repairs of doors and windows; a number of new doors are needed to replace those warped and shrunken; new bath tubs and water-closets, and the old plumbing generally overhauled; grooves for the driveways and walks in the grounds; a new flagstaff; new concrete floors for laundry, and new floor (concrete or brick) for engine room; an addition to the boiler house for the convenient storage of coal. Further repairs to stable are necessary, and the outside woodwork of all the buildings will require some alteration.

Hospital at Boston, Mass. (*erected 1860*).—Surg. H. W. Austin makes the following report of repairs and improvements at this hospital station:

Plumbing work renewed and repaired in the officers' quarters and hospital portion has cost $73.33; a new tin roof on front veranda cost $160, and repairs to slate roof cost $45. The steam feed pump of the heating apparatus, and other minor repairs to the general heating system, has cost $112.40. The erection of a partition in the surgeon's kitchen involved an expenditure of $32.02 for labor and material. Miscellaneous repairs to various parts of the hospital and quarters cost $53.56 for labor and material, a considerable portion of the former being performed by hospital attendants.

Painting: All woodwork in wards on third and fourth floors; four rooms in surgeon's quarters; all woodwork in passed assistant surgeon's quarters; three rooms, bath room, and closet in assistant surgeon's quarters; floor of hall and bath room in senior steward's quarters; four rooms in attendants' quarters; cost of paints, etc., $211.93.

Whitewashing: Old storehouse in rear of stable and picket fence on west side of grounds; also entire basement of hospital and interior of boiler house.

The ward space in this hospital building is inadequate at times to furnish accommodation for the patients who are entitled to relief. There were 140 patients in the hospital during January, 1895, of whom a large number were suffering from severe injuries, from pneumonia, from enteric fever, from phthisis, etc., requiring ample cubic air space, which on account of the very crowded condition of the building could not be provided. Every room in the hospital, including the small wards on the fourth floor, was occupied. This can best be remedied by removing the medical officers' quarters from the building and erecting a separate building for the commanding officer. This would be the most economical method of increasing the hospital capacity and from an administrative and economical standpoint preferable to any other plan. I have therefore to recommend that a building for the residence of the commanding officer be erected upon the reservation. This building should be constructed of brick and stone to correspond to the other buildings in style. The estimated cost of this building is $9,000.

The mortuary and autopsy rooms are located too near the hospital building, and should be removed to the west end of the building in which they are at present located. In the rooms at present used for this purpose there is neither hot nor cold water, nor gas; neither is there any drainage-pipe connection with the sewer, which not only makes these rooms very inconvenient, but unsanitary. A 6-inch sewer pipe extending from the west end of the building around the main building, and connecting with the main sewer in front of the hospital should be put in, and hot and cold water brought to the new mortuary. The old floors are rotten and should be replaced with an elastic cement floor so that it can be thoroughly cleaned and disinfected. The estimated cost of this work, including sinks and other necessary fittings to make complete, is $850. There is still available, from the appropriation for stable and autopsy room and pipe tunnel, $347. Deducting this, an additional appropriation of $500 will be required.

The steam-laundry plant now located in the basement of the hospital building is exceedingly objectionable from a sanitary standpoint. The soiled bed linen from all classes of patients must be brought here and stored until ready for washing, and the constant change of air from the basement to the upper rooms in the building carry the steam and odors from the laundry to all parts of the house. There are also other objections. The shafting which runs the centrifugal wringer, the washers, and the mangle is attached to the arches overhead, and when the engine is working full speed it shakes the building considerably, and will eventually damage its walls.

The quarters of the passed assistant surgeon are located over the laundry, and the noise and jar is so great that the rooms are decidedly uncomfortable. The south end of the brick outbuilding can, with little alteration, be made suitable for a laundry building. A few brick piers will have to be built to support the shafting, and some of the partitions will have to be removed. New floors will be required. It is estimated that the cost of removing the laundry apparatus from its present location to the building mentioned, and making the necessary changes in the building, connecting with the sewer, and bringing hot and cold water to the building, etc., will be $650.

New wooden floors are required in two storerooms, the ironing room, the basement hall, surgeon's quarters, the Vansant ward, the steward's dining room, hall and passageway on the second floor, and two passageways on the third floor of the main building. The cost of this is estimated at $500.

The large entrance hall floor to the hospital is worn out, very rough and unsightly, and should be replaced with encaustic tiling or marble. Estimated cost, $650.

The operation room should be finished inside with material so that it can be made aseptic. This will necessitate putting in a new tile floor and finishing the walls and ceiling with porcelain paint. The estimated cost of this is $250.

The roadway extending from Broadway to the Marine Hospital Reservation, which was formerly transferred from the Naval Hospital Reservation, should be graded. The High street entrance to the hospital, the only one available at present, is most objectionable. During the winter it is almost impossible to bring supplies up the steep grade, and great difficulty is experienced in bringing patients in the ambulance when it is iced over. The new roadway, when graded, will make a shorter drive to the city, having an easier grade and more desirable approach. Specifications and plans with an estimate of this work have been forwarded to the Department. The estimate is $3,500.

The iron water-supply tanks located on the fifth floor of the building are now quite old, and it is believed they are so badly rusted as to render them unsafe. Proposals for new tanks have been forwarded to the Department. The estimated cost of these tanks is $1,500.

A new high board fence along the north line of the reservation is very much needed to replace the old one, which is broken down and worthless. This fence is necessary to keep persons out of the lower part of the grounds and to protect the property of the Government.

The appropriation in the sundry civil bill of $1,000 for an elevator for the building is not sufficient. I have endeavored to obtain a proposal to have an elevator put in, but have been informed that a hydraulic elevator of sufficient capacity for the building can not be furnished for less than $2,500. I would therefore recommend that an additional appropriation of $1,500 be made for this purpose.

A few of the slate-floor tiles in the second and third story water-closets and on the east and south verandas are loose and require resetting. The estimated cost of this work is $75.

Some interior painting will be necessary, which can be done by the attendants of the hospital if paints and oils are furnished. Estimated cost of material, $100.

The hospital and other buildings at this station are handsome permanent brick and iron structures, conveniently located, and well adapted for the large service at this port, and, with the exception of the required improvements mentioned, are in good repair. The buildings and grounds belonging to the service here are very valuable, and the necessary repairs should be made to insure efficient service, as well as to preserve the property.

Hospital at Cairo, Ill. (erected 1885).—Surg. J. M. Gassaway makes the following report of repairs and improvements at this hospital station:

New permanent shelving placed in executive office, operation room, and medical storeroom; porches, bridges, and outside steps repaired and repainted in several places; kitchen ranges rebuilt, and all exposed ironwork given one or more coats of preservative paint except the iron fence; pickets replaced or renewed on wooden fence; laundry cistern cleaned, repaired, and repiped, and the drying grounds refurnished with posts, at a total expense for material of $253.26.

The heating apparatus was repaired by local mechanics by replacing worn-out coils and connections in the hot-water apparatus of the executive building and renewing main boiler grates, $68, and the following repairs and renewals made by hospital attendants: Heating system overhauled, radiator air and steam valves reground and replaced; unions, nipples, and packing renewed, and a worn-out gate valve replaced, at an additional expenditure of $53.05 for material. Total cost of repairs and improvements was $388.11.

In view of the extremes of temperature annually occurring at this station, and to add to the comfort of those connected with the hospital, as well as to economize in fuel, it is recommended that portable storm doors be placed at the main entrances of the executive building (two) and of the surgeon's quarters (two). The open space under the dining room and kitchen of the surgeon's quarters should be boarded up, windows placed therein, and the underside of the floor ceiled. These improvements would render the halls less intolerably cold in winter, would prevent freezing of water and gas pipes which are now not properly protected, and would, in addition, furnish an abundance of storage room for washtubs and other utensils, vegetables, etc., and make the dining room and kitchen of those quarters less uncomfortable in cold weather. The windows of the surgeon's quarters on the first or parlor floor should be cut down to the floor to meet the floor of the porch or piazza, extending around three sides of that building. They are unusually high from the floor, and being necessarily closely screened in warm weather to keep out insects, make the house, otherwise a model residence, unwholesomely close and hot. Awnings should be placed over the windows in the second story.

The bath tubs and sitz baths, of which there are two of the former and one of the latter in each ward, together with one bath tub each in the executive building (steward's quarters), attendants' quarters, and surgeon's quarters, are made of planished copper, and are "housed" or boxed in with wood. These should be torn out and porcelain-lined steel tubs placed in their stead, standing in each case well clear of the walls and without any framing or boxing. One tub and one sitz bath should replace the three tubs in each of the two ward bathrooms. Awnings should also be placed in the windows of the steward's and attendants' quarters.

The gas lighting should be replaced by electric lighting as more economical, more convenient, and far more cleanly. Light can be furnished by the city electric companies and electric fans provided for the office and operating rooms.

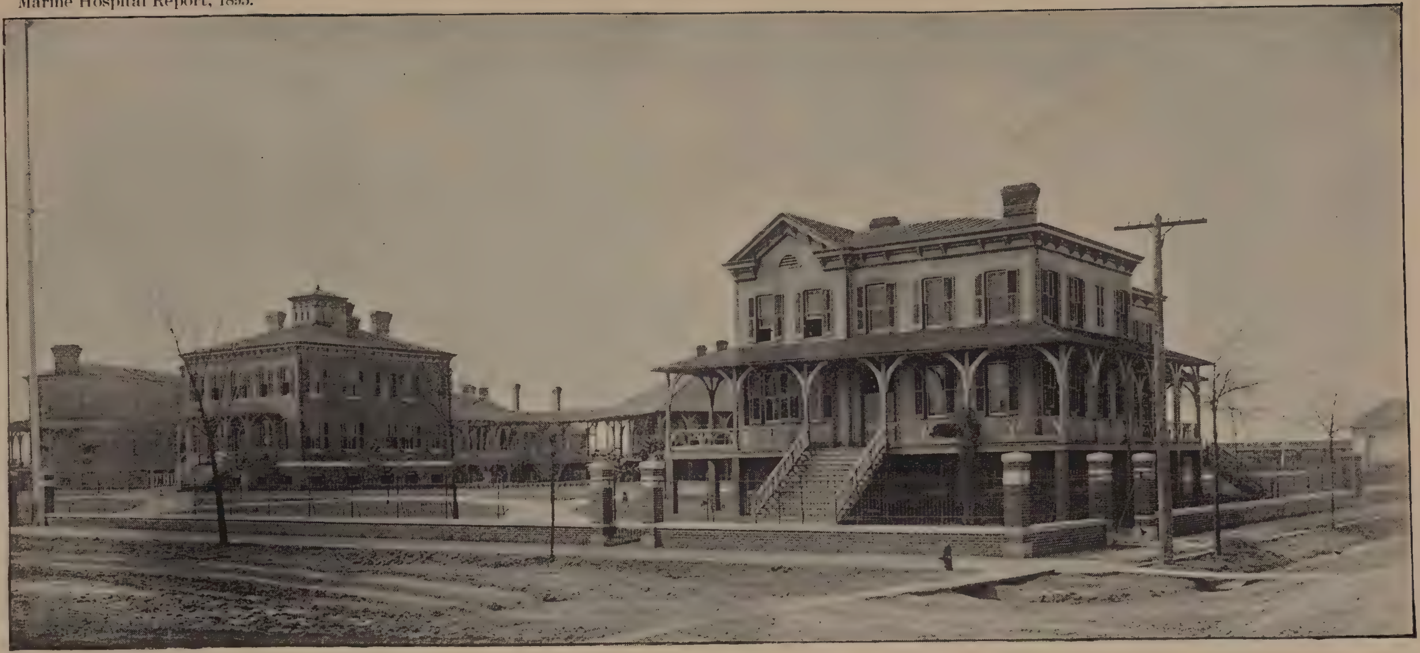
A 6-ton scale complete for weighing coal should be supplied. Its use would greatly assist the conduct of the station.

The iron fence on two sides of the reservation should be continued along the remaining sides, and the eastern sidewalk, now a mass of weeds, should be laid in a substantial sidewalk of brick. This unpaved portion of the reservation and the wooden partition of the fence surrounding the grounds give an undignified air to what is otherwise a very beautiful and important piece of Government property.

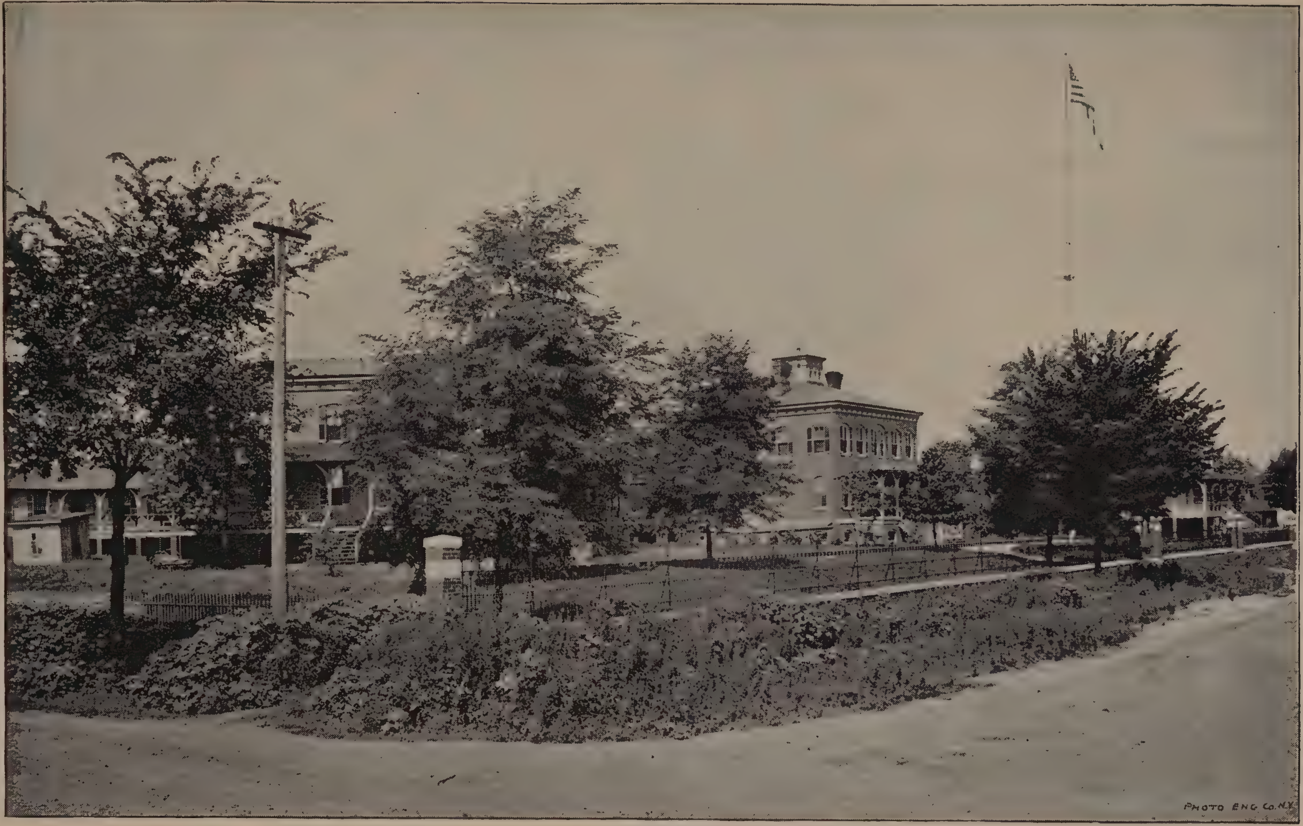
A filter of sufficient capacity is urgently needed to purify the exceedingly filthy water furnished by the water company, a private corporation, during some seasons of the year, and which is at all seasons unwholesome unless well filtered.

Hospital at Chicago, Ill. (*erected 1873*).—Surg. J. B. Hamilton makes the following report of repairs and improvements at this hospital station:

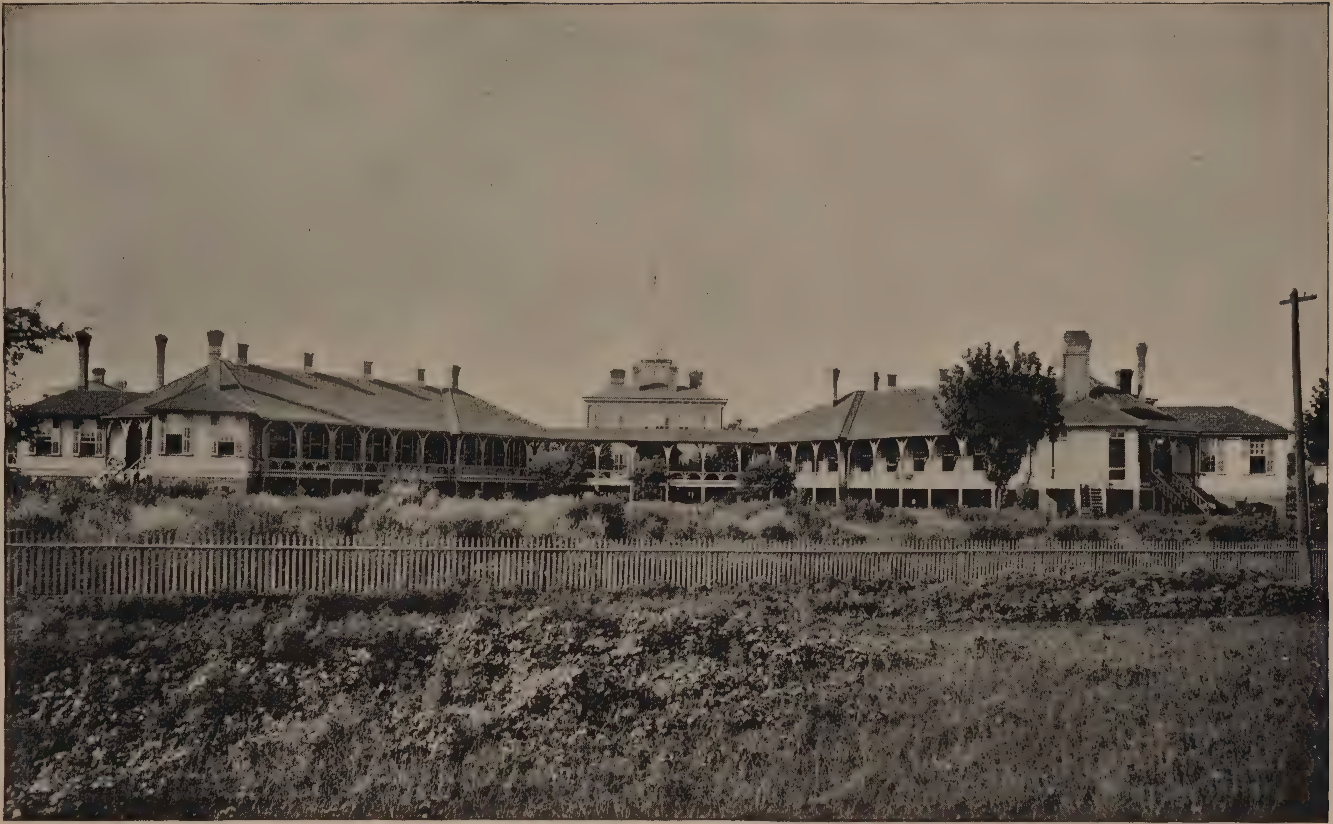
New concrete floor, new soapstone washtubs, and new bath tub in laundry building; new copper-tinned roof and gutters, and repairs to slate roof of boiler house and laundry buildings; repairs to roof and gutters of main building; new galvanized iron sink, porcelain lined, for chemical room, main building; new floors in hospital dining room, linen room, and record room; new door, and repairing doors of lockers, hospital linen room; the hospital dining room walls, ceiling, and woodwork newly painted; the hospital kitchen, five storerooms, linen room, necropsy room, record room, water-closet, condemned room, and all basement corridors calcimined; all walls, ceilings, and woodwork of rooms and corridors, first floor central portion of main building, including stairway and walls to fourth floor, painted; all walls, ceilings, and woodwork of third floor (comprising quarters of passed assistant surgeon



U. S. MARINE HOSPITAL, CAIRO, ILLINOIS. (FRONT VIEW.)



U. S. MARINE HOSPITAL, CAIRO, ILLINOIS. (SIDE VIEW.)



U. S. MARINE HOSPITAL, CAIRO, ILLINOIS. (REAR VIEW.)

and interne) cleaned and painted; the walls, ceilings, and woodwork of fourth floor cleaned down and painted. All of the work was executed under contract, at a total cost of $3,336.

These repairs have greatly improved the hospital.

Urgent needs are new plumbing in first-floor ward, south wing; stone filling for the breakwater on the lake front; artesian well 300 feet deep, and a surface well 30 feet deep. It will also be necessary to lay a sidewalk (535 feet) in front of the grounds and to macadamize one-half of the street, with a curb along the same. The grounds should then have a brick wall on two sides of reservation and an iron fence in front. It is also desirable that a surgeon's residence be constructed.

Hospital at Cincinnati, Ohio (*erected 1884*).—P. A. Surg. P. C. Kalloch makes the following report of repairs and improvements at this hospital station:

The hot-water boiler has been repaired by replacing the brass tubes with copper, at a cost of $385; plumbing in the hospital and quarters has been renewed or repaired, at a cost of $166.25, and general repairs in various departments have been made, at a total cost of $155.49.

Repairs of a more extensive character have been recommended to and approved by inspectors from the Treasury Department, but were not authorized. Among these for which a necessity still exists are the following:

An area way on east side of east ward, estimate, $935; an additional story on cottage, estimate, $1,100; painting main building inside and wards outside, estimate, $790; repairing walk, Pearl street side, estimate, $400; making entrance on Third street, with cement walk to hospital, estimate, $100. Repairs to the heating apparatus are needed, and some form of artificial ventilating apparatus should be provided. Electric lighting should be substituted for gas.

Marine hospital, Delaware Breakwater, near Lewes, Del. (*established—1894*). On November 1, 1894, one of the buildings which formed part of the quarantine establishment at Delaware Breakwater was designated as a marine hospital, to which all patients in need of hospital treatment, applying for same at the Breakwater or Lewes, should be sent for treatment. This building had never been used for contagious diseases and is well adapted for the purposes named, although it is one of the oldest on the reservation and requires considerable repair to keep it in order. It was built about fifteen years ago.

P. A. Surg. C. P. Wertenbaker, in command, reports the following repairs as urgently needed at this hospital station:

1. The kitchen floor has worn so thin by constant use that there are numerous holes in it, and one is in great danger of breaking through. In similar condition is the floor of the porch connecting this kitchen with the hospital building. It is now imperative that they be repaired at once. Cost will be $60.

2. The front porch is badly rotted, flooring broken through in a number of places; should have a new platform, 8 feet wide by 60 feet long, and new steps. Cost will be $80.

3. The roof leaks at several points, especially around the east dormer windows and the chimneys. The water comes through at each rain and will cause much greater damage if not repaired at once. The cost will be $100.

There are other minor repairs that can be covered by a cost of $50, making a total of $300. These estimates are contractors' figures, and will be found correct.

As cold weather is rapidly approaching, it is very desirable that these repairs be finished as soon as possible.

Hospital at Detroit, Mich. (*erected 1857*).—Surg. W. H. H. Hutton makes the following report of repairs and improvements at this hospital station:

A new residence of stone and brick, containing ten rooms and basement, with all modern conveniences, for the use of the medical officer in command, has been constructed, completed, furnished, and occupied. Repairs and materials for same, for barn, plumbing, including paints and oils, have been made at a total cost of $358.53.

One ward, an operating room, and the smoking room have been treated antiseptically. Walls and ceilings painted four coats, and floor and woodwork polished and iron fence in front thoroughly painted by the attendants. More of such work will be done later in the season.

The following repairs are immediately necessary: Considerable plastering of the ceilings of two rooms (kitchen and dining room) has fallen and needs to be replaced—estimated cost, $100; some of the water-closets should have the old porous marble floor and walls torn out and replaced with glazed tiling and new closets—estimated cost, $200; three of the old water-soaked bath tubs should be replaced with porcelain-lined bath tubs—estimated cost, $300; the steam-heating apparatus is in good order and has not cost a cent for repairs during the year.

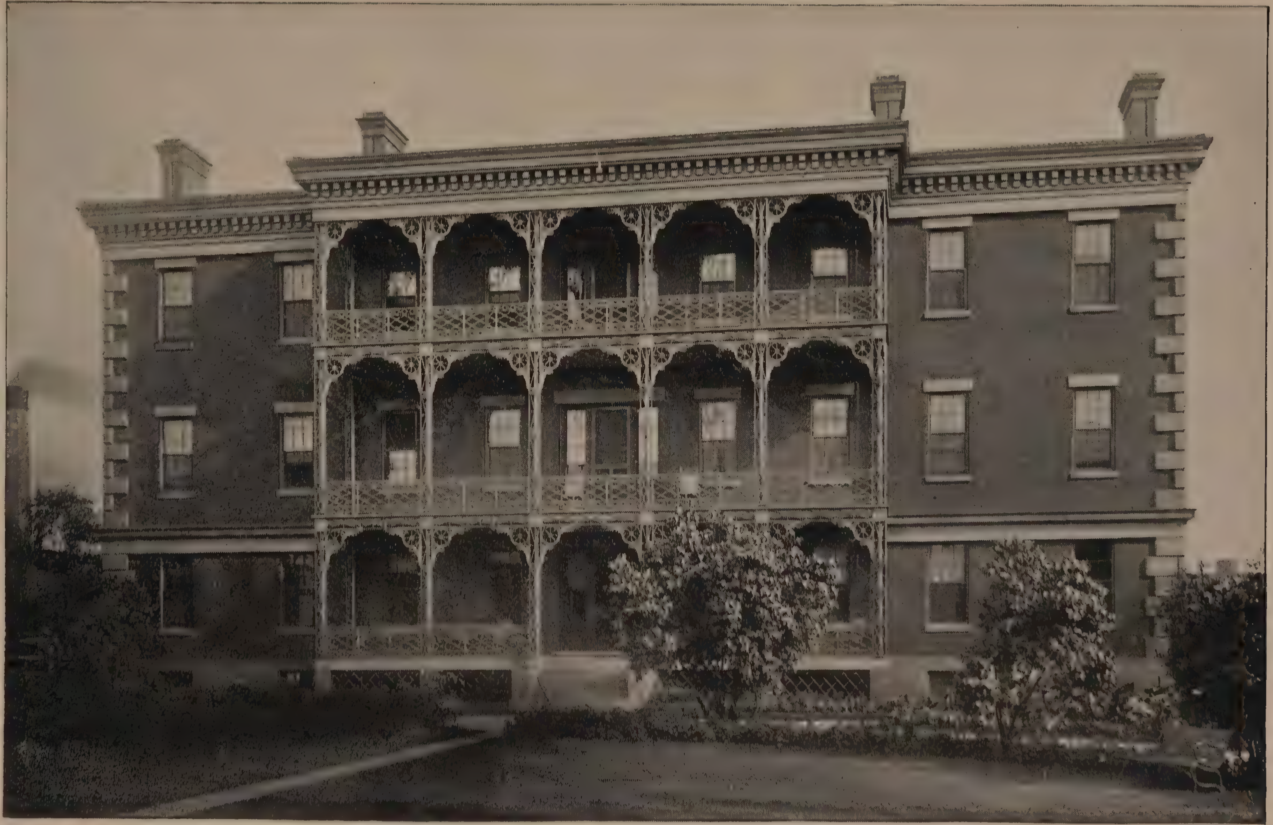
Hospital at Evansville, Ind. (*erected 1891*).—P. A. Surg. P. M. Carrington makes the following report of repairs and improvements at this hospital station:

Two bath tubs and one water-closet have been placed in the surgeon's residence, and three dish-washing sinks in the ward dining rooms and hospital kitchen, at a cost of $273; painting and papering entire interior of surgeon's residence and upper floor of executive building, $285; building two storerooms, glazing door panels, and window in surgeon's residence, and cutting door in executive building, at a cost of $155; engineers' supplies, for repairs to heating plant, etc., have been purchased and applied, costing $298.80; minor repairs to buildings and plumbing have cost $160.96; other repairs to the heating plant and plumbing have been made from time to time by the engineers, and the rear portion of the reservation has been cleared of bushes, and drainage ditches dug by the regular force of employees.

Something should be done to protect the north line of the reservation from the washing produced by rain. This matter is, perhaps, less urgent now, so far as the interest of the Government is concerned, than it appeared to be three years ago; that is to say, the washing away of the embankment is now less rapid, but the adjoining property is being injured and rendered less salable by reason of the gullies which are being cut by the large quantity of surface water which drains from the reservation across this property. Instead of building a retaining wall it might be more economical for the Government to purchase the tract of land north of the present reservation, and by proper grading accomplish the double objects of preventing further damage to the grounds and possible damage to buildings, and securing a roadway around the engine house and coal bunkers on the north, both of which are very desirable objects.

In view of the late epidemic of typhoid fever in Evansville, which was clearly shown to be due to pollution of the water supply, I would suggest that measures be adopted to give its hospital an independent water supply, at least for drinking, if not for all purposes. This may be accomplished in either of two ways—the construction of cisterns to be filled by winter rains from our large roof area, or by sinking wells in the rear portion of the reservation.

SURGEON'S RESIDENCE, U. S. MARINE HOSPITAL, DETROIT, MICHIGAN.



U. S. MARINE HOSPITAL, DETROIT, MICHIGAN.

Hospital at Key West, Fla. (*erected 1840*).—P. A. Surg. G. B. Young makes the following report of repairs and improvements at this hospital station:

The unsightly and useless stable, which disfigured the front of the hospital at the north end, has been removed to a point south of and in the rear of hospital, and converted into a storehouse. The decaying fences, which divided the reservation into three sections, have been removed. The wagon road has been marked by a rough stone curbing and graded.

A number of flower beds have been made and planted, and some shrubs and trees set out. New plank walks have been laid back of hospital. A room for the storage of condemned property, provided with bins and shelves, has been cut off from one of the large basement storerooms. Racks for the storage of patients' baggage have been erected in the basement and new shelving put up in subsistence storeroom. The kitchen and all its furniture has been painted and varnished, and its doors and windows provided with wire screens. The tables, chairs, cupboards, etc., of dining room have been painted and the doors and windows screened. The dispensary floor has been covered with linoleum, and the shelving, closets, file cases and desks varnished and repainted. The furniture of surgeon's office has been revarnished and desks re-covered. In the officers' quarters most of the furniture has been repainted and revarnished, a large number of minor repairs made to doors and wire doors, a new force pump put in, and a bathroom cut off from one corner of the porch, a tub put in place, and connections made with water and sewer pipes. The large general storeroom in the attic has been reshelved. Most of the furniture in attendants' rooms has been repainted and revarnished. The wards have been furnished with window screens, and the chairs and bedside stands repaired and revarnished. A neat bathroom, for use of patients unable to take sea baths, has been constructed for the wards and connected with water and sewer pipe. A new tool room has been built. The isolation ward, roof of steward's quarters, and all outbuildings, cisterns, etc., except boathouse and bath house, have been painted and whitewashed. The flagstaff has been painted. In addition a great many minor alterations and additions made to equipment of buildings, etc., and the large amount of damage, done by the hurricane of September, 1894, repaired. Several articles of furniture have been provided for officers' and steward's quarters. There has been expended the following: For labor, material, and general repairs, $187.14; for furniture and repairs to same, $327.74 (including new kitchen outfit for officers' and hospital kitchen and new top for kitchen range). With the exception of the repairs to the cistern and the labor necessary to remove the immense accumulation of seaweed left upon the reservation as a result of the hurricane, all the work has been done by the attendants. Much of the material was already on hand in various shapes, and considerable lumber was obtained as driftwood during the gales of last fall.

The ceilings of the hospital kitchen, officers' kitchen, and lower staircase, as well as portions of the ceilings of two rooms in officers' quarters, fell during the hurricane and should be replaced at once. The entire exterior of the hospital needs painting and whitewashing and much of the interior also. The painting done by contract about two years ago has not stood well. It will be much more satisfactory to purchase material and let the attendants do the work. A large number of minor repairs are needed. The tumble-down fence is a disgrace to the Service. It would be well when it is replaced to have the sea wall extended at northern end to the true corner of the reservation and have the corner filled in. The wall stops some 30 feet short of the proper point. The fence should be of iron on a stone or cement base. The sea wall on the south side should be extended to reach the south end of the fence and the southeast corner of the reservation filled in. At present that corner is under water after every heavy rain and every southwest gale, and in consequence no grass will grow there and that corner of the grounds is bare of vegetation.

A windmill should be provided in order that water may be laid in the various rooms and buildings and provisions made for fire protection. There should be two tanks, one for fresh and the other for salt water. The latter for use in mopping porches, fire, and for baths, the supply of fresh water not being adequate for the latter.

A suitable boat should be provided for use of the station. It would be a great convenience in many ways, and would make possible the saving of nearly all drayage on supplies, etc., from dock to hospital.

Awnings should be provided for the windows of night watchman's room over laundry, and of the laundry. The ordinary afternoon temperature there is 96° or 100°, and the shutters have to be closed to exclude the direct rays of the afternoon sun. The awnings would allow of the windows being opened and thus improve the ventilation and lower the temperature.

The steward's house needs repainting, etc., on the inside, and an addition should be built for a kitchen. The present kitchen (4 by 8 feet) was added by Steward Morris at his own expense, and is entirely inadequate.

Hospital at Louisville, Ky. (*erected 1852*).—P. A. Surg. H. T. Goodwin makes the following report of repairs and improvements at this hospital station:

Minor repairs only have been made during the past year, principally to plumbing, iron railing, heating apparatus, and roof, which, with the material (including paints, oils, etc.), have cost $290.50.

The necessities for improvement of the station are a system of heating the buildings by steam or hot water, estimated to cost $3,500; new brick wall to surround the reservation, $4,000; grading and paving Twenty-first, Twenty-second, and High streets, $2,500; an isolation ward, $500, making a total of $10,500.

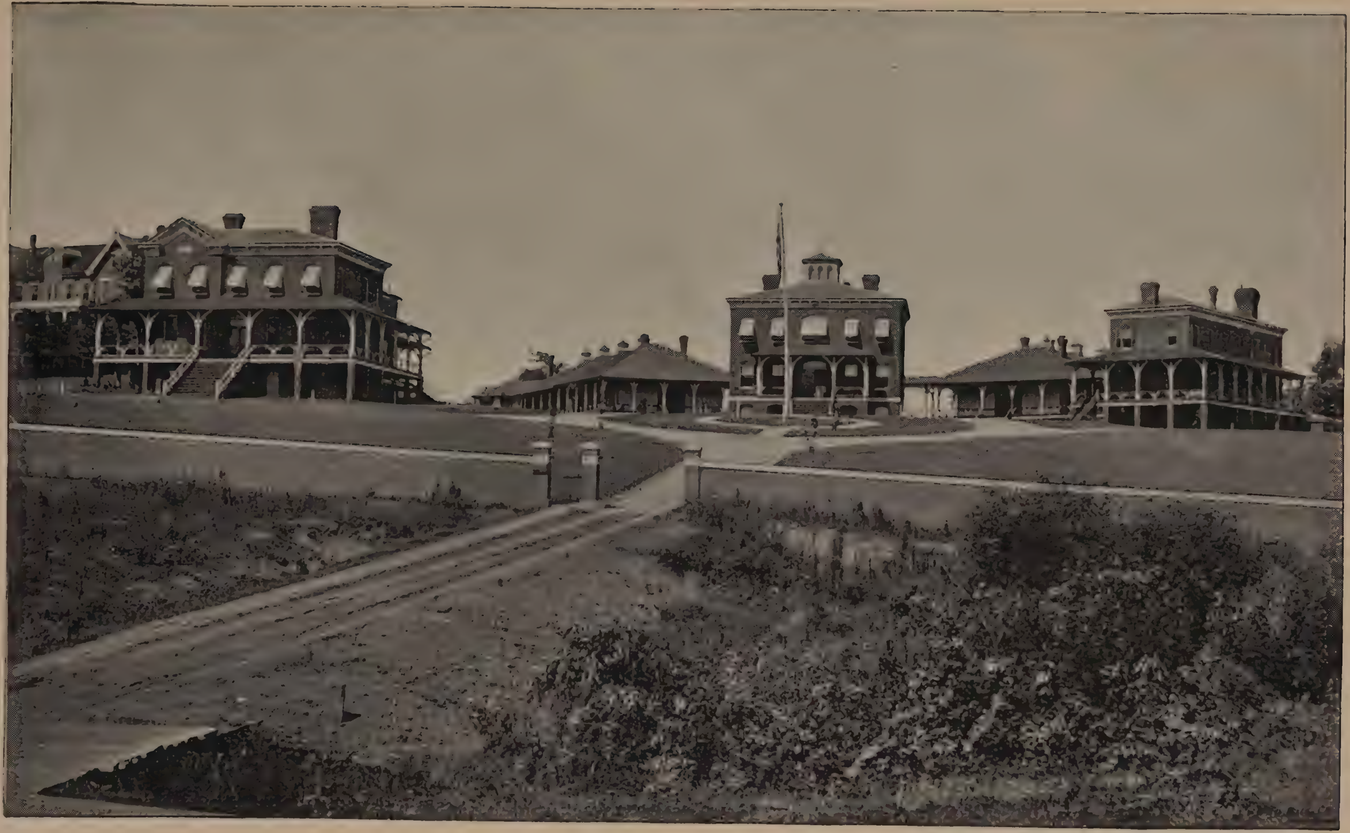
The brick wall is in a very dilapidated condition and can not be repaired for the reason that the foundation as it now stands would be above the level of the street when the streets are graded. The attention of the Department was invited to this subject in my letter of April 1, 1895.

The occurrence of smallpox in this hospital during the month of May impressed me with the necessity of having a ward where contagious cases, or cases suspected of being contagious, could be isolated. In the occurrence of smallpox above referred to the patient had to be kept in the hospital several days after the diagnosis had been made, as the board of health declined to receive him until the disease had fully developed. As our means of isolation here are very imperfect it was with the greatest difficulty that I prevented the other patients and attendants from being exposed. In fact, complete isolation in the one building is impossible.

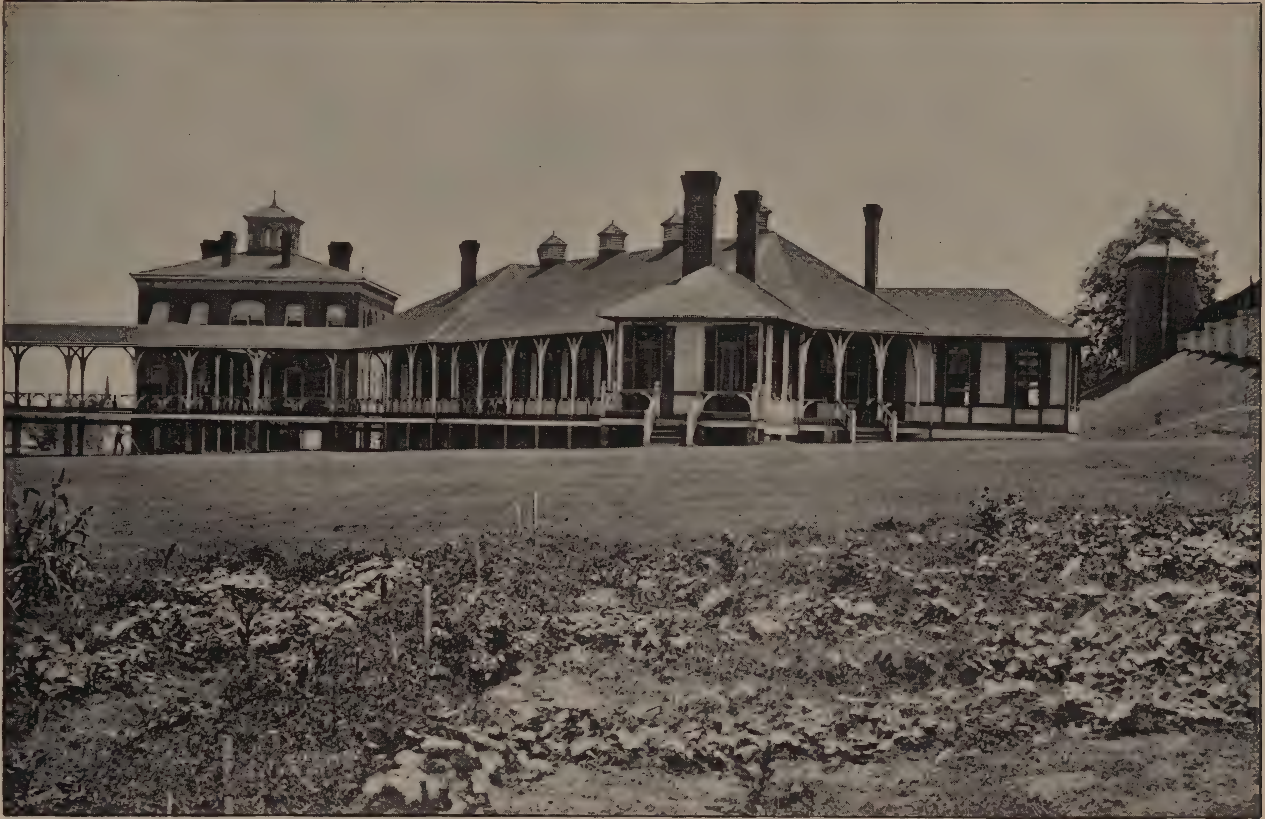
The quarters for attendants are insufficient, and a better laundry is needed. It was recommended by the late Acting Asst. Surg. W. M. Griffiths in his letter of July 8, 1893, to the Department, that a residence for the medical officer be built and a laundry building, with rooms on the second floor for the attendants. I would renew the recommendation for the residence of the medical officer, and consider that the erection of it would obviate the necessity of a separate laundry building, as there would then be ample room in the present building to fit up a good laundry and quarter the attendants very comfortably. The estimated cost of a residence is $7,500.

Hospital at Memphis, Tenn. (*erected 1886*).—P. A. Surg. A. C. Smith makes the following report of repairs and improvements at this hospital station:

The amount of the expenditure charged to the appropriation for the repairs and preservation of public buildings is $2,288.05. Of this sum, $1,964 was expended for miscellaneous repairs and painting. The repairs made under this head prepared the buildings for painting, while the painting consisted of two coats applied to the



U. S. MARINE HOSPITAL, EVANSVILLE, INDIANA. (FRONT VIEW.)



U. S. MARINE HOSPITAL, EVANSVILLE, INDIANA. (REAR VIEW.)

interior and exterior of the buildings. This work needed to be done very much and the improvement is marked. The grounds have been surveyed and the boundaries permanently marked at a cost of $40. A pipe was laid connecting the hot-water pipes of the kitchen and executive building, and an extra sink was put up in the steward's quarters in the executive building at a cost of $61. The executive building is now supplied with hot water from the 100-gallon range boiler in the hospital kitchen. The sum of $147.85 was expended for lumber and other building materials for use in making repairs and improvements by the hospital employees. With a part of these materials a carpenter shop and cart house has been built against the west side of the old water tower, and a small liquor closet has been built in the basement of the executive building. The remaining amount, $75.20, was expended upon emergency repairs to the plumbing.

In addition to the above $34.35 was expended, charged to the "appropriation for heating apparatus for public buildings," for materials for bronzing the radiators and emergency repairs.

As further improvements and repairs, stone abutments are required to retain the embankments on the boundaries of the reservation, and a fence to complete the inclosure of the grounds. The brick walks also require to be raised and repaired in some places. The method of heating the building should be improved by extending the present steam heating apparatus to the kitchen building and putting a hot-water apparatus in the surgeon's quarters.

Hospital at Mobile, Ala. (*erected 1843*).—Surg. C. S. D. Fessenden makes the following report of repairs and improvements at this hospital station:

Besides repairs to the hospital roof, costing $113.50; to the heating apparatus, grates, and fireplaces, costing $95; and to the walls in the assistant surgeon's quarters, costing $70, only minor repairs to the various departments of the hospital have been made, at a total cost of $418.12 in labor and material.

The following improvements are recommended: Painting outside woodwork of building, repairs to blinds (new hinges, etc.), repairs to plastering, new floors in surgeon's quarters and kitchen, bath tub in steward's quarters, repairs to crack in wall of hospital building, and a sewer laid from the reservation to the Mobile River.

Estimates of the cost of making these repairs will be forwarded, except as to the painting of outside woodwork and repairs to the crack in wall, which are thought to require the action of an inspector of public buildings.

Hospital at New Orleans, La. (*erected 1885*).—Surg. H. W. Sawtelle makes the following report of repairs and improvements made at this hospital station:

The work performed under contract during the past fiscal year has been as follows: The new water system, provided for by special appropriation, has been completed at a cost of $2,459.93; the old water tanks were taken down and the lumber utilized for minor repairs about buildings and grounds; plastering in the executive building, kitchen, wards, surgeon's and passed assistant surgeon's quarters repaired, also roof of executive building, costing $300; platform scales repaired at an expense of $125.

Miscellaneous repairs have been performed by hospital attendants as follows: Tin roofs of verandas of wards, surgeon's and passed assistant surgeon's quarters repaired and repainted; all the screen doors and windows in the executive building and medical officer's quarters were refitted, and concrete and stone walks repaired at a cost of $50.90.

The dumping ground, located in the garden, containing an accumulation of decaying garbage, deposited there for years, together with tin cans, ashes, etc., removed.

All garbage, etc., is now removed by the garbage company of the city daily, free of charge.

The lawns around the passed assistant surgeon's quarters have been filled in, leveled, and resown with grass seed; also the lawn in front of the executive building.

The unusual cold weather last winter did much damage to the plumbing in the grounds and hospital buildings. Most of the exposed water pipes froze and burst, and several of the water-closets broke, owing to water freezing in the traps. The supply pipe at the river front froze also, and consequently water could not be pumped for several days. The necessary repairs were made at a cost of $15.24 only, there being on hand considerable old pipe, which was utilized. The broken water-closets were replaced at a cost of $31.50.

All the orange trees on the reservation were killed by frost and have been cut down and removed.

The following recommendations relative to repairs and improvements still needed at this station are submitted:

Painting exterior and interior of surgeon's house, passed assistant and assistant surgeon's houses, executive building, three wards and galleries, kitchen, also exterior of stable, together with six wooden cisterns. The recent repairs to plastering necessarily disfigured the interior walls and ceilings, which now present an unsightly appearance and require immediate attention. The exterior work is necessary to preserve the buildings; estimated cost, $3,000.

New laundry machinery is needed to complete the proposed laundry plant, not included in the appropriation by Congress for "a new laundry and attendants' building;" cost, $2,000. The roof of the executive building leaks about the cupola, also roof of veranda of surgeon's house; cost for repairs, $500.

The kitchen and dining room floors are worn out, also stable floors; cost for necessary repairs, $500.

The tubular steam boiler should be reset. The present brickwork is broken to such an extent that it is necessary to support the side walls to keep them from falling; cost, $600.

The roadways about the reservation are in bad condition and require 400 loads of gravel to put them in good order; cost, $200.

The present wooden fence around the surgeon's house is rotten and should be replaced by one of iron. An iron fence is also needed to separate the garden from the other portion of the reservation; total length, 1,190 feet. Cost of iron fence, $500.

The lawns in front of the hospital buildings should be plowed, leveled, and sowed with lawn-grass seed; cost, $150.

A small veranda is needed for the executive building, in front of the steward's quarters; cost, $150.

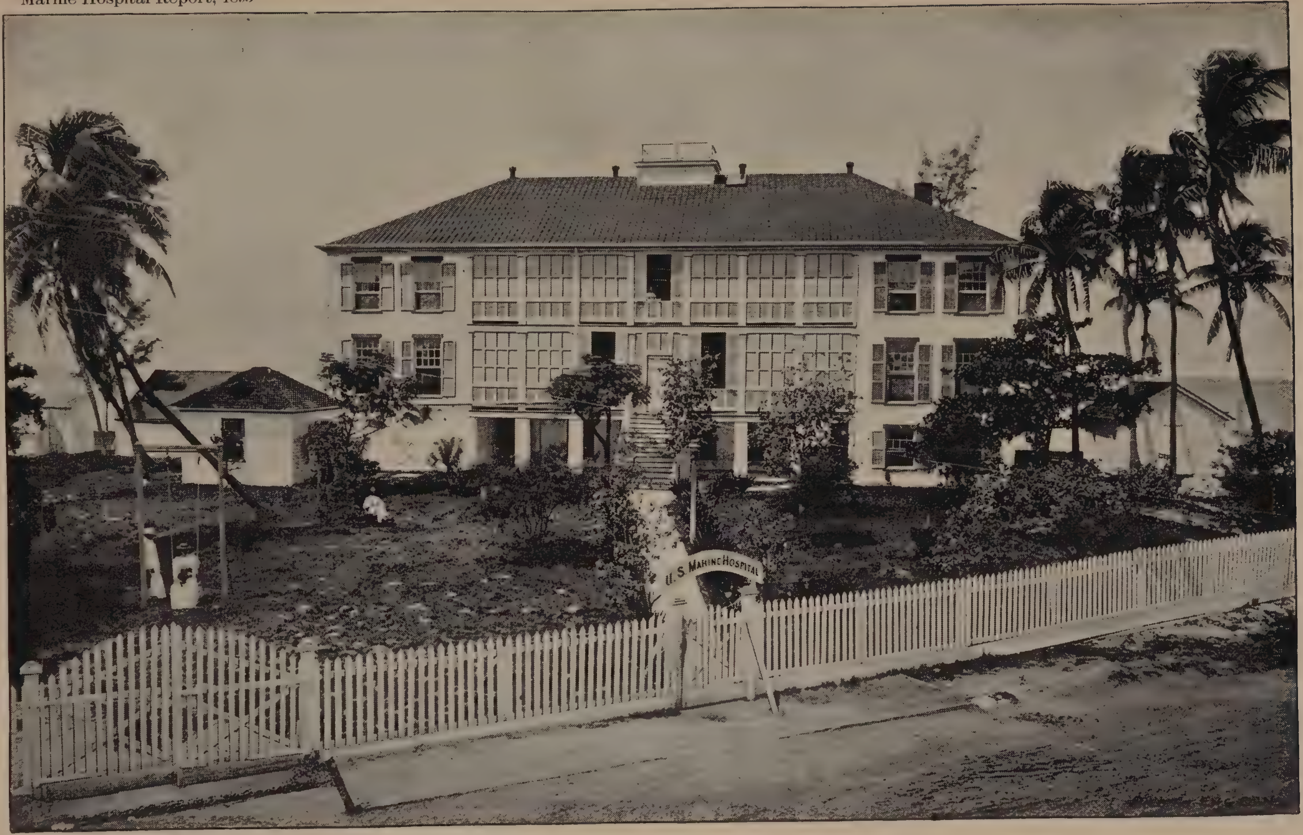
A new entrance and driveway to the hospital from Henry Clay avenue should be provided; cost, $1,000. This improvement is necessary for the reason that the Tchoupitoulas street electric-car track runs within a few feet of the present hospital gate, thus rendering it dangerous for the ambulance and other vehicles in passing to and from the hospital.

A "Schillinger" walk, 112 square yards, should be laid from the front of executive building to the levee, to replace the present broken stone flagging; cost, $175.

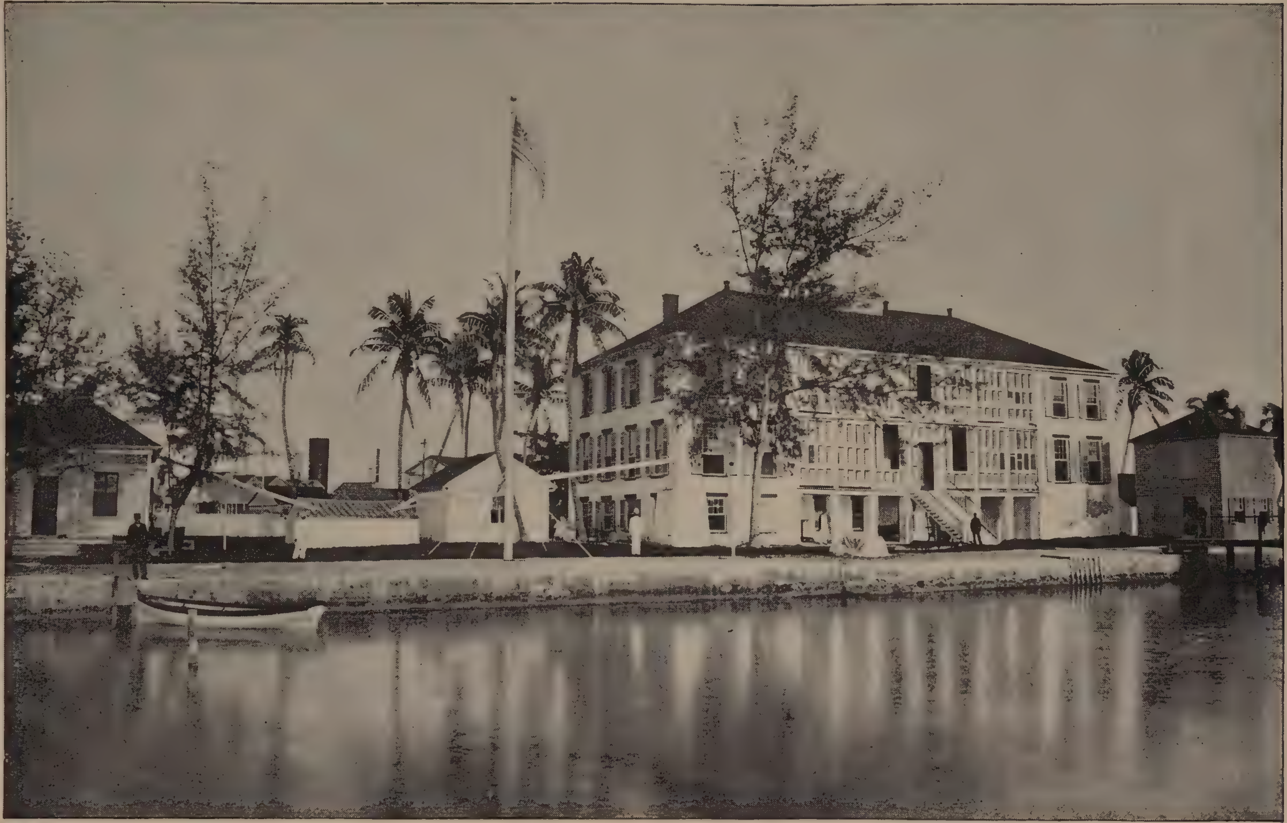
The brick pavement about the reservation, 1,540 square yards, should be taken up and relaid in cement, it being impossible to prevent the growth of grass and weeds, and to keep it clean and in order requires the constant service of one man; cost, $900.

Hospital at Portland, Me. (*erected 1859*).—Surg. F. W. Mead makes the following report of repairs and improvements at this hospital station:

The electric-light plant has been completed at a cost of $3,342.50, and the steam laundry plant has been set up, costing $893.01; repairs to barn and stables have been



U. S. MARINE HOSPITAL, KEY WEST, FLORIDA. (FRONT VIEW.)



U. S. MARINE HOSPITAL, KEY WEST, FLORIDA. (REAR VIEW.)

made at a cost of $585.82, and a new iron porch on the north front has been erected, costing $345; repairs to plastering, stoves, dynamos, windows, and plumbing have been completed, costing $97.68, and paints for use by hospital attendants in painting have cost $52.58, making a total of $5,316.59.

Some of the repairs have been done by the attendants, the material only having been purchased.

This station is in excellent condition, and during the present fiscal year only slight repairs will be necessary. Emergency repairs, probably of small amounts and chargeable to the several appropriations, only are anticipated.

Hospital at St. Louis, Mo. (*erected 1885*).—P. A. Surg. D. A. Carmichael makes the following report of repairs and improvements at this hospital station:

A 10,000-gallon iron tank has been erected in the fourth story of the old building with pipe and fire hose to be used in case of fire, at a cost of $1,065.70; two new washing machines were put in laundry at a cost of $512; new smokestack to boiler house was erected, costing $409; and repairs to heating apparatus (miscellaneous), cost $194.

New porch and window awning for medical officers' quarters and executive building, cost $166.24; plastering in old building, laundry, and executive building was completed during the year, costing $67; repairs to range in medical officers' and stewards' quarters and hospital kitchen, cost $38.75; repairs to plumbing in hospital and quarters, cost $65.35; paints, oils, etc., for painting interior of laundry, medical officers' quarters, oiling floors, etc., work done by hospital attendants, cost $252.05.

The following recommendations relative to repairs and improvements still needed at this station are made:

Repairs to stable and ambulance house, estimated to cost $450; repairs to floors of wards, executive building galleries, laundry, walk from south ward to dining room, attendants' room, and three new doors should be made soon at a probable cost of $800; repairs to fence and stonework of old building, $120; a wood tank of 100 gallons capacity for filtered water for laundry purposes is needed, estimated cost, $100; repairs to boiler house, new sidewalks, repairs to stone steps, cementing floor, and new coal slide, estimated to cost $190; making a door and laying on hot and cold water in dining room of south ward to be used as a room for surgical dressings, will cost $85; oiling and painting exterior of old buildings, including brickwork, painting wards, exterior and interior, and roof, and painting executive building, exterior and interior, and roof, should be done at once. The cost is estimated at $3,892.

The old building has been in use fifty years, and presents a shabby appearance from the outside. As it is likely to be in use many years longer it should be renovated exteriorly to make it respectable. The interior of the wards and executive building have not been painted for four years; the exteriors were done two years ago by the hospital attendants.

The whole of these buildings and the roof require painting for their preservation. The stable and floors of the wards, etc., were reported in a state of decay two years since and have been reported on by three Government inspectors. It is absolutely necessary that they should have attention. A tank is necessary in the laundry for the reception of filtered water for laundry purposes.

Hospital at San Francisco, Cal. (*erected 1875*).—Surg. John Godfrey makes the following report of repairs and improvements at this hospital station:

The new laundry building, with a concrete area wall, costing $620, and laundry machinery installed in same, costing $3,551.50, have been completed. New water-closets, bath tubs, and slop sinks for Wards A, B, and C, and executive building, together with slop sinks for kitchen and pantry, have cost $1,213.30. A new water-tank with brick piers cost $477. Repairs to the tin roof and gutters of laundry building have been made, costing $60. Minor repairs performed by hospital attendants, at cost of material only, have been made to plumbing, heating apparatus, and woodwork of the station at an expenditure of $225.25.

The following recommendations relative to repairs and improvements still needed at this station are submitted for consideration:

The exterior of all the buildings and flagstaff need paint for their preservation; cost, $1,765. The floors of Wards A, B, and C are worn, rough, and uneven; they can not be improved by planing or scraping; cost of renewing them, $300; renewing a worn-out mantlepiece in fever room of Ward C, $20; renewing a worn-out water heater attached to kitchen range in junior steward's quarters, $20. From this source hot water is supplied to the dispensary and bath tub in executive building. A new necropsy house suitably located is required, cost, $100. The present one is worn out, and is close to, and in front of the new ward building. The stable is located too near the same building; cost of removing and repairing, $300. The accommodation for assistant surgeons is inadequate for the needs of the station. Two rooms might be added to their quarters for $300, or a suitable building erected for $3,000. Attendants' quarters have never been constructed at this station; they have been located in odd places about the buildings. The old laundry building could be raised one story and patched up for their accommodation for $300, or a suitable building erected for $2,000. A front entrance to the hospital is very much needed, and the necessity therefor, together with photographs showing the present side entrance was explained in letter transmitted from this office September 4, 1894. A front entrance can be obtained by building a bridge across Mountain Lake for about $3,000.

Hospital at Wilmington, N. C. (*erected 1859*).—Surg. John Vansant makes the following report of repairs and improvements at this hospital station:

In December a new board fence was built inclosing three sides of the hospital square, and the paling fence front was repaired; also a cement walk was constructed from the front gate to the front steps of hospital. Work done by contract at cost of $345.

In March all the outside wood and iron work of the hospital building, including the roof, was repainted; the front fence was also repainted at the same time. The work was done under approved contract at an expense of $225.

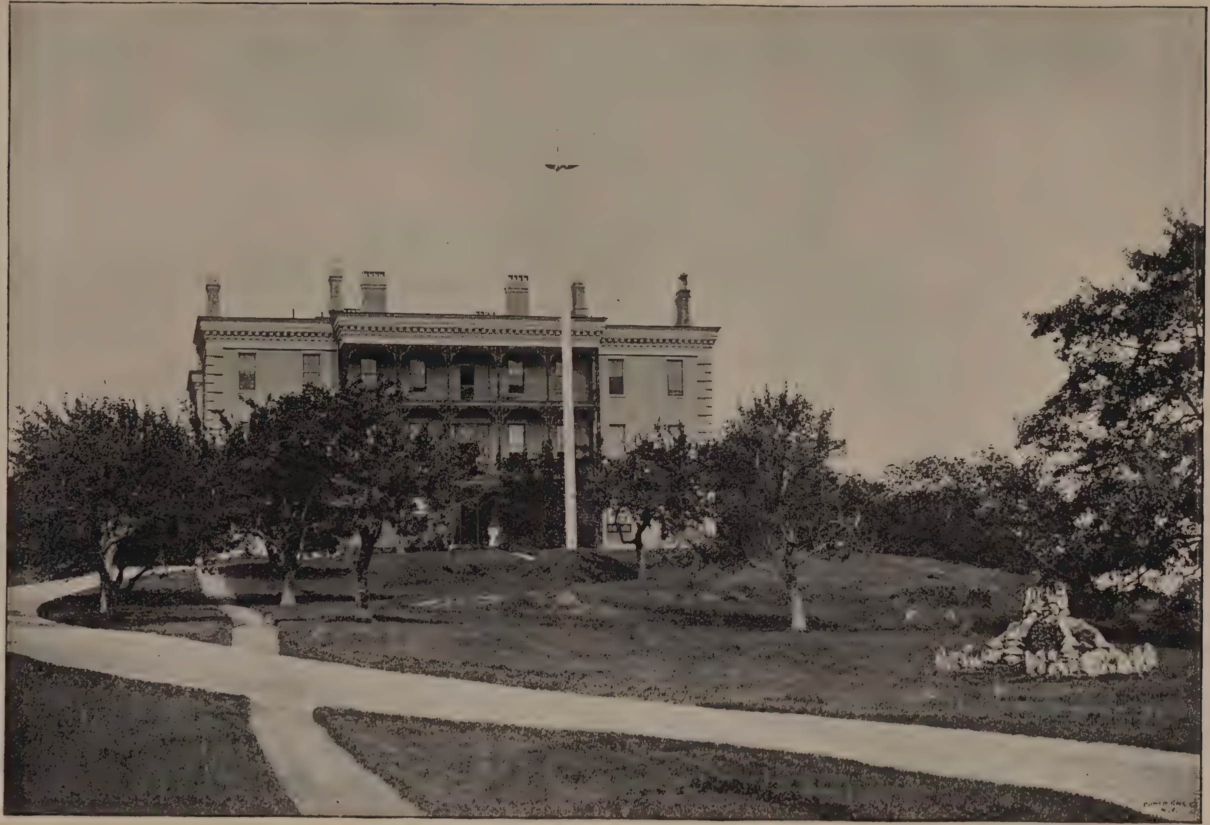
At various times during the year the water pipes in the buildings and grounds were repaired at a total cost of $43.96.

NEW HOSPITALS.

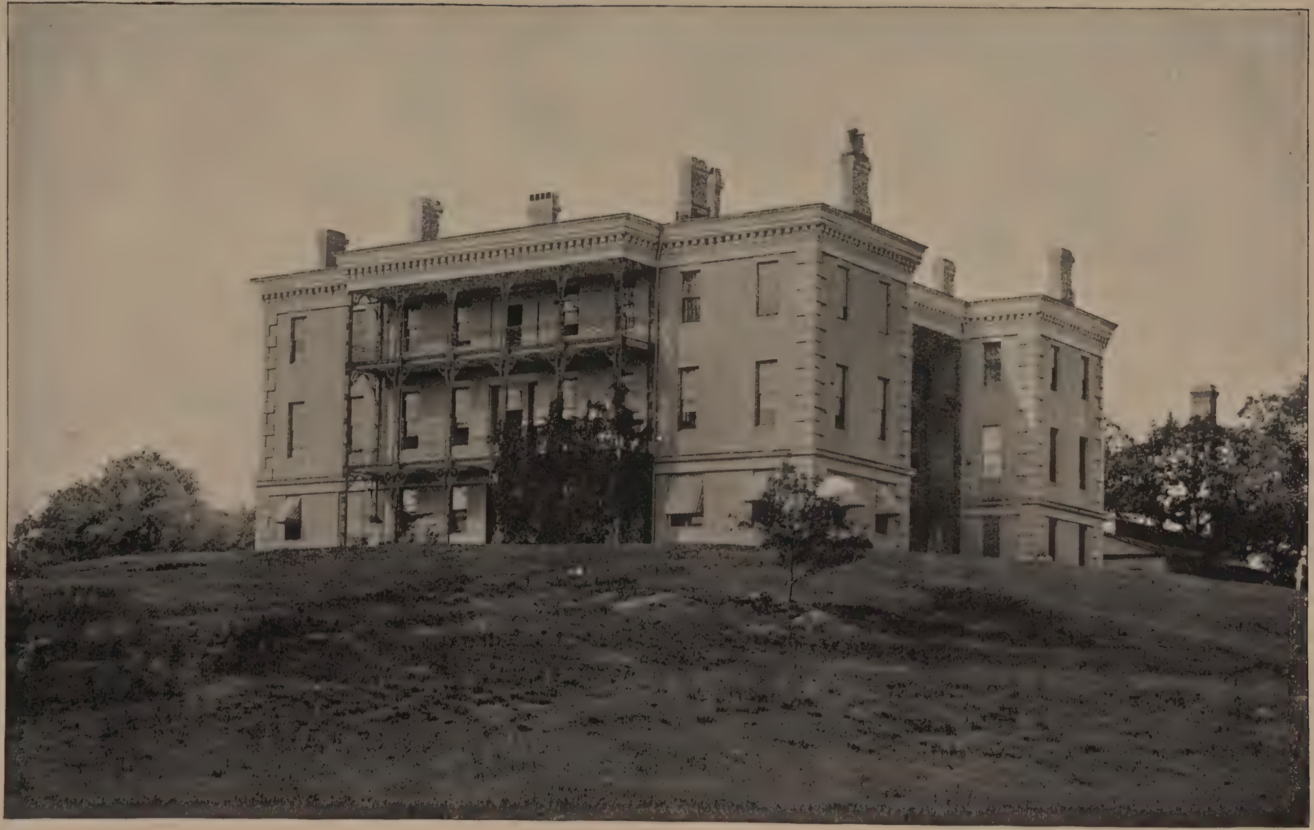
Two new marine hospitals, provided by Congressional appropriations, are rapidly approaching completion and will probably be occupied before the end of the calendar year, viz, at Port Townsend, Wash., and Vineyard Haven, Mass. At the port of Wilmington, N. C., there is to be erected a new ward, provided for by an appropriation of $7,000 in the sundry civil bill approved March 2, 1895, and the condition of these several buildings in course of construction and about to be built may be learned from the reports of the officers in command of the stations.

Vineyard Haven, Mass.—P. A. Surg. E. R. Houghton makes the following report of the progress in the construction of the new hospital:

The appropriation of $20,000 for the United States marine hospital at this port, which became available July 1, 1891, has finally been made use of, as after many



U. S. MARINE HOSPITAL, PORTLAND, MAINE. (FRONT VIEW.)



U. S. MARINE HOSPITAL, PORTLAND, MAINE. (SIDE VIEW.)

efforts to secure proposals and remodeling plans several times, bids were finally accepted and work begun on the new building December 16 last, and pushed during all sorts of weather till at this date (July, 1895) it is nearly ready for occupancy.

The alterations and improvements consist in a new building 110 by 42 feet, two stories high, including four wards for six patients each, offices, operating room, dispensary, steward's quarters, bathrooms, laundry, etc., built about 150 feet in the rear of the old buildings on a higher and more commanding situation; moving the old ward building to the rear and adjoining the new building, and remodeling same into a kitchen and dining room; steam-heating apparatus, new cesspools, and grading grounds to a small extent.

The cost of the foregoing, exclusive of plans, advertising, etc., and superintendent's salary is as follows: Contract for new building, moving and remodeling old building, etc., $15,500; steam-heating apparatus, $1,437; grading grounds, $75, and cesspools, $172. The grounds and old buildings have been neglected in the matter of repairs for three or four years in order to save as much as possible of the appropriation, in hopes that the new establishment would be completed thereby, but it seems that the large cost of so many plans and other expenses has made it necessary to omit many desirable additions and improvements, one of which is the water supply referred to in a previous communication.

In the line of carrying out the improvement of this station I would submit the following (besides the subject of water referred to) for your consideration, viz: A fence around the reservation, moving the old buildings to the rear of the reservation, repairing and painting the same, grading grounds, planting trees, etc. The fence is a very necessary improvement and should receive early attention. The reservation is adjoined on three sides by fields where cattle are pastured, and the Government has no fence to protect the public property and the improvements already made and contemplated, as well as to prevent trespassing by pedestrians to and from the village.

The old buildings should be moved to the rear because they obstruct the view from the new hospital and prevent proper grading of grounds, besides the impropriety of having a deadhouse, privy, and other old buildings on the front lawn. As previously stated, the old buildings have been neglected as to repairs and when moved should be fixed up where necessary and painted to correspond to the new buildings.

Owing to the limited force and appropriation, little grading has been done to the grounds, and this should receive some attention. Trees, shrubs, etc., should be set out to make the place less barren, as at present there is not one of either on the place. The trees in time would be quite a benefit as a wind-break if nothing else. A new roadway is also urgently needed, and should be included in any plan for improving the grounds.

Wilmington, N. C.—The Supervising Architect is now engaged in preparing plans and specifications for a new ward, provided by an appropriation of $7,000 in the sundry civil bill, approved March 2, 1895, to be built as an addition to the present hospital building. The climate of Wilmington is of a nature quite favorable for certain cases of tuberculosis of the lungs, and it may become desirable to send to this station, when these additional facilities are acquired, such patients now in our marine hospitals along the north Atlantic Coast whose retention there in that rigorous climate jeopardizes their chances of recovery. Surg. John Vansant submits the following suggestions as to the immediate requirements of the station for the extension of hospital facilities, and I concur in general with them:

I think a wooden ward building that could accommodate about sixteen or eighteen patients, in at least four separate rooms, with the necessary bath and water-closet conveniences and sewer connections, and means for isolating an occasional contagious case that might require it, also with nurse's room, small diningroom and smoking rooms, might perhaps be built for the $7,000 mentioned, and then it would be best to place it in the rear of the present building, not far from it, and connected with it by a covered way. In regard to heating such a new ward, considering the limited amount of money at disposal, I presume it would have to be done by stoves, with all the accompanying expense for fuel, danger from fire, and increased labor for attendants. The gas, for lighting, could probably be introduced with the sum at command. The building should be two stories high, with verandas on two sides and one end, and the patients should occupy the upper story. It would be greatly preferable to transfer the hospital kitchen and the small imperfect laundry from their bad present location in the basement to the lower floor of such new building. Still better it would also be if the dispensary, the office, and the steward's quarters could be removed to a suitable annex to such building on the northwest end. But, to embrace the latter, I apprehend, would require more than the appropriation.

Port Townsend, Wash.—The Department on the 9th of February, 1895, accepted the proposal of D. W. Starratt for the erection and completion (except heating apparatus and laundry machinery), including approaches, of the United States Marine Hospital at Port Townsend, Wash., omitting the entire rear ward, for the sum of $25,845.50, the work to be completed within seven months from the date of the approval of his contract and bond. It is expected that it will be occupied by the close of the present calendar year.

CARE OF SEAMEN.

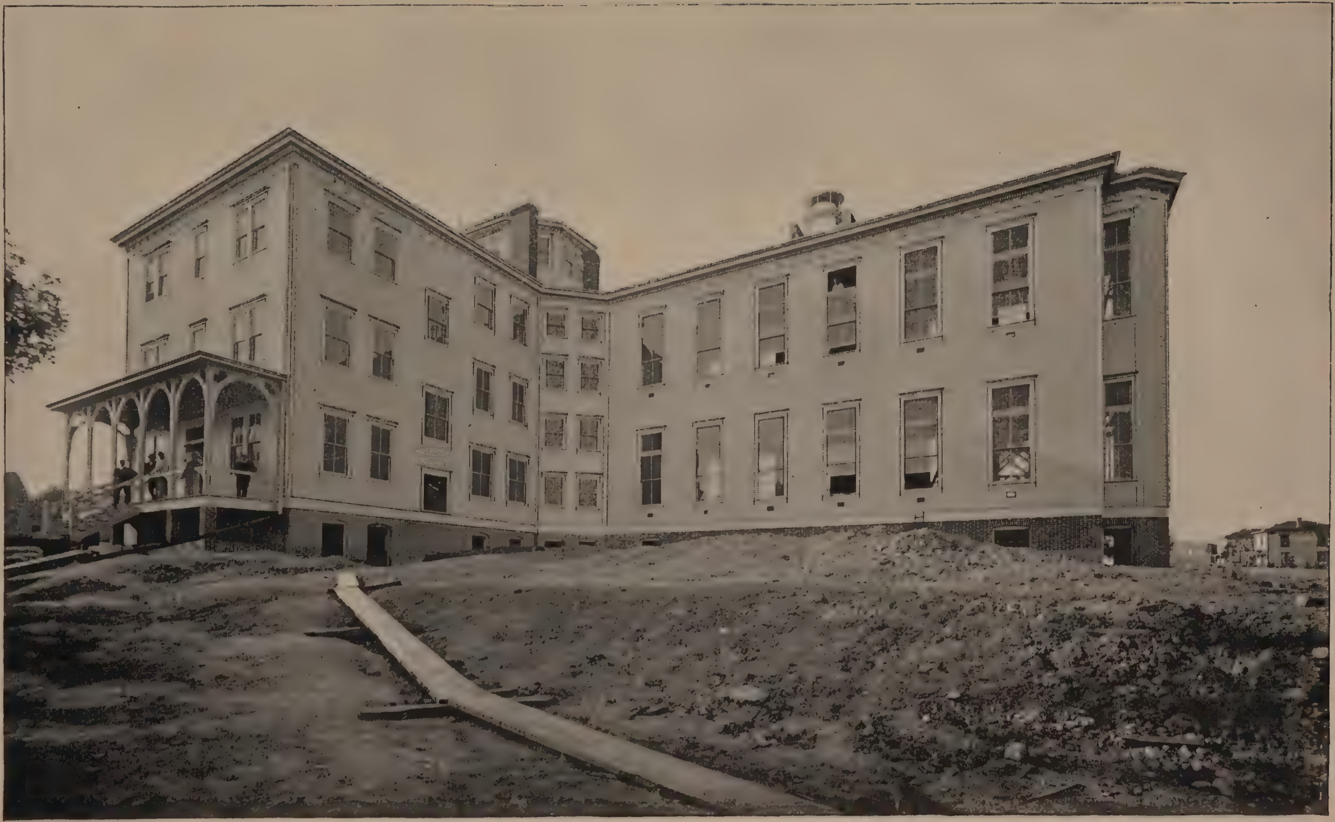
The provisions made for the care of seamen for the fiscal year ending June 30, 1896, at all ports where relief is furnished, are set forth in the following circular:

CONTRACTS FOR THE CARE OF SEAMEN, ETC.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, U. S. M. H. S.,
Washington, D. C., June 20, 1895.

The following contracts for the care of seamen entitled to relief from this Service for the fiscal year ending June 30, 1896, are published for the information of accounting officers of the Treasury Department, disbursing agents, medical officers of the Marine-Hospital Service, acting assistant surgeons, and customs officers. This circular is to be regarded as official notification of the acceptance of the proposals made by the parties designated, and must be cited, giving its number and date, on all bills for the treatment and maintenance of seamen, and for the burial of deceased patients, as the authority for any expenditure incurred under its provisions. Charges will be allowed for the day of admission of a hospital patient, but not for the day of discharge or death. The right is reserved by the Secretary of the Treasury to terminate any contract whenever the interests of the Service require it. All relief must be furnished in accordance with the revised regulations of the Marine-Hospital Service, and in consequence of the largely increased expenditures for relief and of the limited sources of income, it has become necessary to give notice that, as provided in the regulations, no allowance will be made for expenditures incurred at any other station than those named in this circular.

The term "contagious diseases" wherever occurring in this circular, except as to specific contracts made otherwise, includes only those diseases which, under usual



U. S. MARINE HOSPITAL, PORT TOWNSEND, WASHINGTON. (UNFINISHED.)

municipal regulations, are required to be treated in a pesthouse, namely, cholera, yellow fever, plague, or smallpox, and in some municipalities, measles.

WALTER WYMAN,
Supervising Surgeon-General U. S. Marine-Hospital Service.

Approved:
S. WIKE, *Acting Secretary of the Treasury.*

Albany, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; the Albany Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day.

Alexandria, Va.—The medical attendance to be furnished by an acting assistant surgeon; the Alexandria Infirmary to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

Apalachicola, Fla.—Dr. J. D. Rush to furnish medical attendance and medicines, at $30 per month; Martha Campbell to furnish quarters, subsistence, and nursing, at $1 per day, and to provide for the burial of deceased patients, at $12.50 each.

Ashland, Wis.—St. Joseph's Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at 85 cents a day, $2 a day for contagious cases, and to provide for the burial of deceased patients, at $9 each.

Ashtabula, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Henry Whelpley to furnish quarters, subsistence, and nursing, at $1 per day; contagious diseases, $1.50 per day; John Ducro & Sons to provide for the burial of deceased patients, at $14 each. Patients requiring long-continued hospital treatment will be furnished transportation to the United States Marine Hospital at Detroit, Mich.

Astoria, Oreg.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day.

Baltimore, Md.—Hospital patients to be cared for in the United States Marine Hospital; F. M. Denny to provide for the burial of deceased patients, at $16.50 each.

Bangor, Me.—The medical attendance to be furnished by an acting assistant surgeon; Helen M. Stratton to furnish quarters, subsistence, and nursing, at $1 per day; Abel Hunt to provide for the burial of deceased patients, at $10 each.

Bath, Me.—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Bismarck, N. Dak.—The medical attendance to be furnished by an acting assistant surgeon; Lamborn Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

Boston, Mass.—Hospital patients to be cared for in the United States Marine Hospital at Chelsea, Mass.; burial of deceased patients at the hospital cemetery; burial of foreign patients, at $10 each.

Bridgeport, Conn.—Bridgeport Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at $1 per day; Hawley, Wilmot & Reynolds to provide for the burial of deceased patients, at $16 each.

Brownsville, Tex.—The medical attendance to be furnished by an acting assistant surgeon. Until other arrangements are made, $1 per day will be allowed for the care of hospital patients.

Brunswick, Ga.—The medical attendance to be furnished by an acting assistant surgeon; Johanna Foley to furnish quarters, subsistence, and nursing, at 90 cents per day.

Buffalo, N. Y.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; the Buffalo Hospital (Sisters of Charity) to furnish quarters, subsistence, nursing, and medicines, at 80 cents per day; contagious diseases, at $2 per day; and to provide for the burial of deceased patients, at $10 each.

Burlington, Iowa.—The Mercy Hospital to furnish quarters, subsistence, medical attendance, nursing, and medicines, at 75 cents per day.

Cairo, Ill.—Hospital patients to be cared for in the United States Marine Hospital; L. E. Falconer to provide for the burial of deceased patients, at $9 each.

Cambridge, Md.—The medical attendance to be furnished by an acting assistant surgeon; Charles J. Webb to furnish quarters, subsistence, and nursing, at 50 cents per day.

Charleston, S. C.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; out-patients to be treated at the dispensary (Atlantic Wharf); St. Francis Xavier's Infirmary to furnish quarters, subsistence, nursing, and medicines, at 74 cents per day; contagious diseases, $3 per day; and to provide for the burial of deceased patients, at $12 each.

Chattanooga, Tenn.—The medical attendance to be furnished by an acting assistant surgeon; Hamilton County Hospital to furnish quarters, subsistence, nursing, and medicines, at 65 cents per day.

Chicago, Ill.—Hospital patients to be cared for in the United States Marine Hospital; H. Bartlett to provide for the burial of deceased patients, at $17.50 each.

Cincinnati, Ohio.—Hospital patients to be cared for in the United States Marine Hospital; dispensary at the hospital, southeast corner of Third and Kilgour streets; John B. Habig to provide for the burial of deceased white patients, at $16 each; colored patients, at $17.50 each.

Cleveland, Ohio.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; the Cleveland City Hospital Association to furnish quarters, subsistence, nursing, and medicines, in the United States Marine Hospital, under lease of September 21, 1875, at 64 cents per day. The hospital to be kept in repair by the association; Flynn, Abel & Froelk to furnish ambulance service, at $2 for each patient, and to provide for the burial of deceased patients, at $17 each.

Corpus Christi, Tex.—The medical attendance to be furnished by an acting assistant surgeon; James E. Ellis to furnish quarters, subsistence, and nursing, at $1 per day.

Darien, Ga.—The medical attendance to be furnished by an acting assistant surgeon; patients requiring hospital treatment will be furnished transportation to Brunswick, Ga.

Delaware Breakwater, Del.—Hospital patients to be cared for in the United States Marine Hospital.

Detroit, Mich.—Hospital patients to be cared for in the United States Marine Hospital; out-patients to be treated at the dispensary, No. 90 Griswold street; Ed. H. Patterson to provide for the burial of deceased patients, at $10 each.

Dubuque, Iowa.—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Mercy Hospital to furnish ambulance service, quarters, subsistence, nursing, and medicines, at $1 per day; John A. Voelker to provide for the burial of deceased patients, at $14 each.

Duluth, Minn.—The medical attendance to be furnished by an acting assistant surgeon; St. Luke's Hospital to furnish quarters, subsistence, nursing, and medicines, at 85 cents per day; John W. Stewart to provide for the burial of deceased patients, at $15 each.

Edenton, N. C.—R. Dillard, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at $2 per day. For out-patients $1 will be allowed for each medical examination, and 25 cents additional for each time medicine is furnished.

Elizabeth City, N. C.—The medical attendance to be furnished by an acting assistant surgeon.

Ellsworth, Me.—The medical attendance to be furnished by an acting assistant surgeon; hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Erie, Pa.—The medical attendance to be furnished by an acting assistant surgeon; Hamot Hospital Association to furnish quarters, subsistence, nursing, and medicines, at 71 cents per day. Care and treatment of cases of contagious diseases to be furnished by the health department of the city of Erie, at $2.85 per day; W. J. Quinn to provide for the burial of deceased patients, at $18 each.

Escanaba, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Delta County Hospital to furnish quarters, subsistence, and nursing, at $1 per day.

Eureka, Cal.—The medical attendance to be furnished by an acting assistant surgeon; Maria Anderson to furnish quarters, subsistence, nursing, and medicines, at 95 cents per day.

Evansville, Ind.—Hospital patients to be cared for in the United States Marine Hospital; William H. Kirkpatrick to provide for the burial of deceased patients, at $15 each.

Fernandina, Fla.—The medical attendance to be furnished by an acting assistant surgeon; A. D. Mills to furnish quarters, subsistence, and nursing, at $1 per day.

Fredericksburg, Va.—The medical attendance to be furnished by an acting assistant surgeon; Amelia Parrott to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day; George Nossett to provide for the burial of deceased patients, at $12.50 each.

Gallipolis, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Harriet J. Kinder to furnish quarters, subsistence, and nursing, at 75 cents per day, and to provide office quarters for the acting assistant surgeon, at $10 per month; Hayward & Son to provide for the burial of deceased patients, at $15 each.

Galveston, Tex.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Mary's Infirmary to furnish ambulance service, quarters, subsistence, nursing, and medicines, at $1 per day; contagious diseases, at $2 per day; and to provide for the burial of deceased patients, at $10 each. Patients requiring long-continued hospital treatment will be furnished transportation to the United States Marine Hospital at New Orleans.

Georgetown, S. C.—The medical attendance to be furnished by an acting assistant surgeon; hospital care and treatment will be furnished only to patients who are unable to bear transportation to Charleston, S. C.; Joseph J. Dunmore to provide for the burial of deceased patients, at $18 each.

Gloucester, Mass.—The medical attendance to be furnished by an acting assistant surgeon; patients requiring hospital care and treatment to be furnished transportation to the United States Marine Hospital at Chelsea, Mass.

The Government Hospital for the Insane, District of Columbia.—Under act of Congress, March 3, 1875, to furnish quarters, subsistence, nursing, medical attendance, and medicines, at $4.50 per week, for each insane patient admitted upon the order of the Secretary of the Treasury.

Grand Haven, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Anna Farnham to furnish quarters, subsistence, and nursing, at $1 per day.

Green Bay, Wis.—The medical attendance to be furnished by an acting assistant surgeon; Montrose Hospital to furnish quarters, subsistence, nursing, and medicines, at 95 cents per day.

Hartford, Conn.—The Hartford Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at $1 per day; G. W. Woolley & Son to provide for the burial of deceased patients, at $13 each.

Jacksonville, Fla.—The medical attendance to be furnished by an acting assistant surgeon; William H. Jones to furnish quarters, subsistence, and nursing, at 95 cents per day; Edward J. Gordon to provide for the burial of deceased patients, at $12.50 each.

Key West, Fla.—Hospital patients to be cared for in the United States Marine Hospital; Bolio & Boza to provide for the burial of deceased patients, at $8.50 each.

LaCrosse, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Francis Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day; Miller Bros. to provide for the burial of deceased patients, at $19 each.

Little Rock, Ark.—The medical attendance to be furnished by an acting assistant surgeon; Little Rock Infirmary to furnish quarters, subsistence, nursing, and medicines, at $1 per day; F. Baer to provide for the burial of deceased patients, at $12 each.

Louisville, Ky.—Hospital patients to be cared for in the United States Marine Hospital; Schoppenhorst Bros. to provide for the burial of deceased patients, at $15 each.

Ludington, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Hanibal D. Linsley to furnish quarters, subsistence, and nursing, at $1 per day.

Machias, Me.—The medical attendance to be furnished by an acting assistant surgeon; Abiel E. Preble to furnish quarters, subsistence, and nursing, at 90 cents per day; L. H. Hanscom to provide for the burial of deceased patients, at $10 each.

Manistee, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Mercy Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

Marquette, Mich.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, and nursing, at $1 per day, and to provide for burial of deceased patients, at $15 each.

Marshfield, Oreg.—The medical attendance to be furnished by an acting assistant surgeon; John Snyder to furnish quarters, subsistence, nursing, and medicines, at $1.20 per day.

Memphis, Tenn.—Hospital patients to be cared for in the United States Marine Hospital; John Walsh to provide for the burial of deceased patients, at $10 each.

Michigan City, Ind.—The medical attendance to be furnished by an acting assistant surgeon; seamen requiring hospital treatment must make application at the United States Marine Hospital at Chicago, Ill.

Milwaukee, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines, at 80 cents per day, and to provide for the burial of deceased patients, at $15 each; chronic hospital patients to be furnished transportation to the United States Marine Hospital at Chicago, Ill.

Mobile, Ala.—Hospital patients to be cared for in the United States Marine Hospital; G. B. Shawhan to provide for the burial of deceased patients, at $12 each.

Nashville, Tenn.—The medical attendance to be furnished by an acting assistant surgeon; Nashville City Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

New Bedford, Mass.—The medical attendance to be furnished by an acting assistant surgeon; patients requiring hospital care and treatment, if able to bear transportation, will be sent to the United States Marine Hospital at Vineyard Haven.

Newbern, N. C.—The medical attendance to be furnished by an acting assistant surgeon; Susan A. Collins to furnish quarters, subsistence, and nursing, at 70 cents per day; H. W. Simpson to provide for the burial of deceased patients, at $15 each.

New Haven, Conn.—The medical attendance to be furnished by an acting assistant surgeon; the New Haven General Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day, and to provide for the burial of deceased patients, at $15 each; the New Haven board of health to furnish all necessary care and treatment in cases of any contagious disease, at $3 per day.

New London, Conn.—The medical attendance to be furnished by an acting assistant surgeon; hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Stapleton, N. Y.; Thomas J. Foran to provide for the burial of deceased patients, at $13 each.

New Orleans, La.—Hospital patients to be cared for in the United States Marine Hospital; T. J. McMahen & Sons Co. to provide for the burial of deceased patients, at $8.50 each.

Newport, Ark.—The medical attendance to be furnished by an acting assistant surgeon; Puss Watkins to furnish quarters, subsistence, and nursing, at $1 per day.

Newport, R. I.—The medical attendance to be furnished by an acting assistant surgeon; the Newport Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day; Robert C. Cotterell to provide for the burial of deceased patients, at $11.50 each. Patients requiring long-continued hospital treatment will be furnished transportation to the Marine Hospital, Stapleton, Staten Island, N. Y.

New York, N. Y.—Hospital patients to be cared for in the Marine Hospital, Stapleton, Staten Island, N. Y.; out-patients to be treated at the dispensary near the new barge office, Battery; Martin Hughes, of Staten Island, to provide for the burial of deceased patients, at $10 each.

Norfolk, Va.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Vincent Hospital to furnish quarters, subsistence, nursing, ambulance service, and medicines, at 83 cents per day; J. E. Edwards to provide for the burial of deceased patients, at $9.90 each.

Ogdensburg, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; the City Hospital to furnish quarters, subsistence, medicines, and nursing, at $1 per day; the city of Ogdensburg to care for contagious cases, at $3 per day; L. McGillis to provide for the burial of deceased patients, at $15 each.

Oswego, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; the Oswego Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day.

Pensacola, Fla.—The medical attendance to be furnished by an acting assistant surgeon; R. W. Hargis to furnish quarters, subsistence, nursing, and medicines, at $1 per day; S. B. Hutchinson & Co. to provide for the burial of deceased patients, at $15 each. Patients requiring long-continued hospital treatment will be furnished transportation to the United States Marine Hospital at Mobile, Ala.

Philadelphia, Pa.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; the German Hospital to furnish ambulance service, quarters, subsistence, nursing, medicines, and one interne, at $1 per day; and to provide for the burial of deceased patients, at $15 each.

Pittsburg, Pa.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; the Mercy Hospital to furnish quarters, subsistence, nursing, medicines, and a resident physician, at 94 cents per day, and $2 a day for contagious cases; Burns & Giltinan to provide for the burial of deceased patients, at $13 each.

Port Huron, Mich.—The medical attendance to be furnished by an acting assistant surgeon; "Hospital and Home" to furnish quarters, subsistence, and nursing, at $1 per day. Patients requiring long-continued hospital treatment will be furnished transportation to the United States Marine Hospital at Detroit; J. W. Kelly to provide for the burial of deceased patients, at $8 each.

Portland, Me.—Hospital patients to be cared for in the United States Marine Hospital; Ilsley Bros. to provide for burial of deceased patients, at $10 each.

Portland, Oreg.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; out-patients to be treated at the dispensary, Marquam Building; St. Vincent's Hospital to furnish quarters, subsistence, nursing, and medicines, at 60 cents per day; contagious diseases, at $2 per day; F. S. Dunning to provide for the burial of deceased patients, at $10 each.

Portsmouth, N. H.—The medical attendance to be furnished by an acting assistant surgeon; Cottage Hospital to furnish quarters, subsistence, and nursing, at $1 per day.

Port Tampa, Fla.—The medical attendance to be furnished by an acting assistant surgeon.

Port Townsend, Wash.—Hospital patients to be cared for in the United States Marine Hospital; George E. Starrett to provide for the burial of deceased patients, at $16 each.

Providence, R. I.—The Rhode Island Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at $1 per day, and to provide for the burial of deceased patients, at $12 each. Patients requiring long-continued hospital treatment will be furnished transportation to the United States Marine Hospital at Chelsea (port of Boston).

Richmond, Va.—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the Marine Hospital office, custom-house building; "Retreat for the Sick" Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day.

Rockland, Me.—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Rome, Ga.—The medical attendance to be furnished by an acting assistant surgeon; the Martha Battey Hospital to furnish quarters, subsistence, and nursing, at $1 per day.

Saginaw, Mich.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines, at 64 cents per day. Patients requiring long-continued hospital treatment to be furnished transportation to the United States Marine Hospital at Detroit, Mich.

St. Louis, Mo.—Hospital patients to be cared for in the United States Marine Hospital; John Hahn to provide for the burial of deceased patients, at $12.50 each.

St. Paul, Minn.—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day; and to provide for the burial of deceased patients, at $8 each.

San Diego, Cal.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Joseph's Hospital to furnish quarters, subsistence, nursing, and ambulance service, at 69 cents per day, and to provide for the burial of deceased patients, at $11 each. The Union Hospital to care for contagious cases, at the rate of $2 per day.

Sandusky, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; the Good Samaritan Hospital to furnish quarters, subsistence, and nursing, at $1 per day.

San Francisco, Cal.—Hospital patients to be cared for in the United States Marine Hospital; out-patients to be treated at the Marine Hospital Office, rooms 1 to 3, Appraiser's building; burial of deceased patients at the hospital cemetery; burial of foreign seamen, at $10 each.

San Pedro, Cal.—Randolph W. Hill, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at 90 cents per day; contagious diseases, at $1.50 per day; and to provide for the burial of deceased patients, at $7 each.

Sault Ste. Marie, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Annie McNeeley to furnish quarters, subsistence, and nursing, at 75 cents per day; J. Vanderhook to provide for the burial of deceased patients, at $15 each.

Savannah, Ga.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Joseph's Infirmary to furnish quarters, subsistence, nursing, and medicines, at $1 per day; Joseph Goette to provide for the burial of patients, at $7 each.

Seattle, Wash.—The medical attendance to be furnished by an acting assistant surgeon; Providence Hospital to furnish quarters, subsistence, nursing, and medicines, at 60 cents per day; Bonney & Stewart to provide for the burial of deceased patients, at $8 each.

Shreveport, La.—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the Marine Hospital Office; Shreveport Charity Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day; L. M. Melton to provide for the burial of deceased patients, at $16.50 each.

Solomons, Md.—The medical attendance to be furnished by an acting assistant surgeon; W. H. Files to furnish subsistence, nursing, fuel, and lights, at $1 per day; T. M. White to provide for the burial of deceased patients, at $7.50 each. Patients requiring long-continued hospital treatment to be furnished transportation to the United States Marine Hospital, at Baltimore, Md.

Superior, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

Tacoma, Wash.—The medical attendance to be furnished by an acting assistant surgeon; Fanny C. Paddock Hospital to furnish quarters, subsistence, nursing, and medicines, at 55 cents per day.

Tappahannock, Va.—W. G. Jeffries, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines at Tappahannock, Dr. W. J. Newbill at Carter's Creek, and Dr. W. S. Christian at Urbana, each at $1.50 per day. Patients requiring long-continued hospital treatment will be transferred to the United States Marine Hospital at Baltimore, Md.

Toledo, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; the Toledo Hospital Association to furnish quarters, subsistence, nursing, and medicines, at 80 cents per day, contagious diseases, at $2 per day, and to provide for the burial of deceased patients, at $15 each.

Tuckerton, N. J.—The medical attendance to be furnished by an acting assistant surgeon.

Vicksburg, Miss.—The medical attendance to be furnished by an acting assistant surgeon; the Vicksburg City Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 per day; contagious diseases, at $3 per day.

Vineyard Haven, Mass.—Hospital patients to be cared for in the United States Marine Hospital; M. C. Vincent to provide for the burial of deceased patients, at $17 each.

Washington, D. C.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; out-patients to be treated at the dispensary, No. 3, B street SE.; Providence Hospital to furnish quarters, subsistence, nursing, interne attendance, and medicines, at 75 cents per day.

Wheeling, W. Va.—The medical attendance to be furnished by an acting assistant surgeon; the Wheeling Hospital to furnish quarters, subsistence, nursing, and medicines, at 75 cents per day.

Wilmington, N. C.—Hospital patients to be cared for in the United States Marine Hospital; Walter. E. Yopp to provide for the burial of deceased patients, at $11.50 each.

At the following-named ports, hospital or other relief will be furnished only under the provisions of the regulations for the Marine-Hospital Service as to third-class stations:

Barnstable, Mass.; Beaufort, N. C.; Beaufort, S. C.; Belfast, Me.; Burlington, Vt.; Castine, Me.; Cedar Keys, Fla.; Chatham, Mass.; Dennis, Mass.; Eastport, Me.; Edgartown, Mass.; Hyannis, Mass.; Neport News, Va.; Perth Amboy, N. J.; Provincetown, Mass.; Sag Harbor, N. Y.; Salem, Mass.; Sitka, Alaska; Somers Point, N. J.; Waldoboro, Me.; Wilmington, Del.; Wiscasset, Me.

The rate at ports not specifically provided for by this circular will, in each special case, be fixed by the Department, upon the recommendation of the proper officer, in accordance with the regulations.

The rate of charge for seamen from vessels of the Navy and Coast Survey, admitted to hospital under the provisions of the regulations, and of foreign seamen admitted under the act of March 3, 1875, is hereby fixed at the uniform rate of $1 per diem.

At all ports not otherwise specified the dispensary is located at the custom-house or marine hospital.

INSPECTIONS OF RELIEF STATIONS OF THE SECOND CLASS.

With a view to accuracy of information concerning stations of the second class, the following blank form has been provided:

Instructions to medical officers of the Marine-Hospital Service detailed to make inspections of relief stations of the second class.

1. Your visit to the station should be unannounced.
2. Upon arrival at the port you will first call upon the acting assistant surgeon and arrange with him for an inspection of the hospital, which should be made as soon after arrival as practicable.
3. You will then visit the office where out relief is furnished.
4. You will then call upon the collector of customs, if that officer issues relief certificates, and examine the records of the same.
5. You will make appropriate entries to each question of this inspection blank and forward to this office upon the completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General, U. S. Marine-Hospital Service.

Approved April 20, 1895:
C. S. HAMLIN,
Acting Secretary of the Treasury.

I. PERSONNEL.

1. Name of relief station. ———
2. Name of officer in charge of Service. ———
3. Date of appointment. ———
4. Name of contractor furnishing quarters, etc. ———
5. How long has contract been held by present party? ———
6. Is there competition for it annually? ———
7. What is the charge per diem? ———
8. When was the station last inspected? ———
9. Name of inspecting officer. ———

II. HOSPITAL.

1. Location of building used as hospital. ———
2. Is it used entirely for hospital purposes; and if not, for what other purpose is it used? ———
3. Describe general construction. ———
4. Are the marine-hospital patients treated in separate wards? (This should be insisted upon when practicable.) ———
5. Describe the wards occupied by marine-hospital patients. ———
    (*a*) Dimensions. ———
    (*b*) Number of beds in each ward. ———
    (*c*) Cubic air space allowed each patient. ———
    (*d*) Heating, lighting, and ventilating. ———
6. Hospital furniture. ———
    (*a*) What kind of bedsteads, and what kind of mattresses and bedding? ———
    (*b*) Report upon the condition of bedding occupied by marine-hospital patients. ———
    (*c*) Are the beds clean and free from vermin. ———
7. What is the condition of wards as to general cleanliness? ———

8. Is the nursing sufficient, and is the nurse employed trained to the duties? ———

9. Is the character of the diet furnished the same or equal to that prescribed in the diet table for marine hospitals? ———

10. If not, what is the ordinary diet furnished? ———

11. Is extra diet furnished for special cases? ———

12. Are the patients under treatment in hospital correctly recorded in the register, and are all present? ———

13. If any marine-hospital patients are not at hospital at time of examination, state why. ———

14. What is the practice in regard to allowing marine-hospital patients to leave the hospital? Are they allowed to remain out over night? ———

15. Are the cases under treatment proper ones for hospital relief? ———

16. How are the medicines administered to the patients? ———

III. OFFICE OR OUT RELIEF.

1. Is the room for the reception of marine-hospital patients suitable for the purpose? ———
   Location and distance from hospital. ———
2. Is it kept clean and in order? ———
3. Is it satisfactorily equipped for dispensary purposes? ———
4. Is the supply of medicines sufficient? ———
5. What is the condition of the public property (furniture, medicines, implements, instruments, etc.)? ———
6. What records are kept? ———
7. Are they correctly kept, and up to current work? ———
8. Are copies of reports kept on file? ———

IV. GENERAL ADMINISTRATION.

Give number of marine-hospital patients treated during the last fiscal year; and the number treated during the present fiscal year to date of report. ———

Number of days relief furnished marine-hospital patients during the last fiscal year; average duration of treatment in hospital. ———

Give the number of out-patients during the last fiscal year; and the number of out-patients during the present fiscal year to date of report. ———

In your opinion, are marine-hospital patients sent to the hospital who might be treated at the office? ———

Give the ratio of hospital to out-patients during the last fiscal year, and during the present fiscal year to date of report. ———

V. REMARKS AND RECOMMENDATIONS.

I certify that the foregoing is a careful and correct statement of the condition of the service at the port of ———, inspected by me this —— day of ———, 189—.

——— ———,

Surgeon, U. S. M. H. S. Inspector.

CIRCULAR LETTERS RELATING TO ADMINISTRATIVE DETAILS.

Following are circular letters addressed from time to time to medical officers and acting assistant surgeons of the Marine-Hospital Service relative to administrative details:

CIRCULAR LETTER RELATING TO CERTIFICATES OF DISCHARGE.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., November 22, 1894.

To medical officers of the Marine-Hospital Service and others concerned:

The giving of a certificate of discharge to a hospital patient of the Marine-Hospital Service is wholly discretionary with the physician in charge. Such certificate, when presented at any other relief station, is not sufficient evidence of the applicant's title to marine-hospital relief, but may be considered as collateral to other satisfactory data submitted by the seaman.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER RELATING TO SUBSISTENCE AND LAUNDRY WORK AT QUARANTINE STATIONS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., November 30, 1894.

To medical officers and acting assistant surgeons in charge of United States quarantine stations:

You are hereby informed that after this date subsistence and laundry work at public expense will not be allowed to medical officers or acting assistant surgeons in charge of national quarantine stations, except when quartered on vessels in commission.

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER RELATING TO PROMPT DISCHARGE OF PATIENTS FROM CONTRACT HOSPITALS AND TO TREATMENT OF OUT-PATIENTS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., January 30, 1895.

To medical officers, acting assistant surgeons, and others in charge of marine-hospital patients in contract hospitals:

Your attention is hereby called to the necessity of discharging patients promptly upon the termination of the necessary hospital treatment. No provision has been made for mere quarters and subsistence of seamen at the expense of the marine-hospital fund.

Your attention is also directed to paragraph 173 of the regulations, which requires that sick and disabled seamen entitled to the benefits of the Marine-Hospital Service, whose diseases or injuries can properly be relieved without admission to hospital, should be treated as out-patients.

You are requested to acknowledge the receipt of this letter.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER CALLING FOR INFORMATION CONCERNING DUTIES OF HOSPITAL ATTENDANTS.

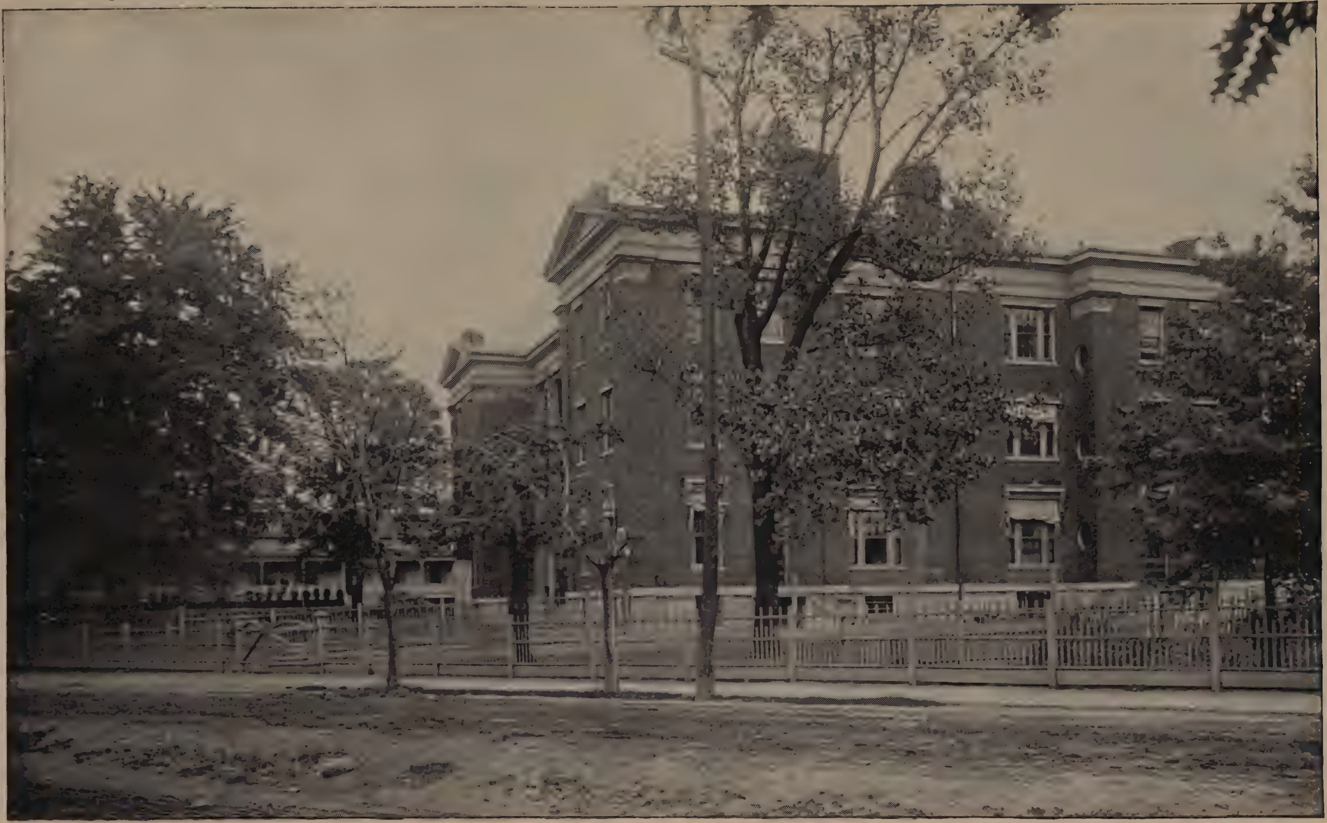
TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., February 15, 1895.

Medical officer in command United States Marine-Hospital Service.

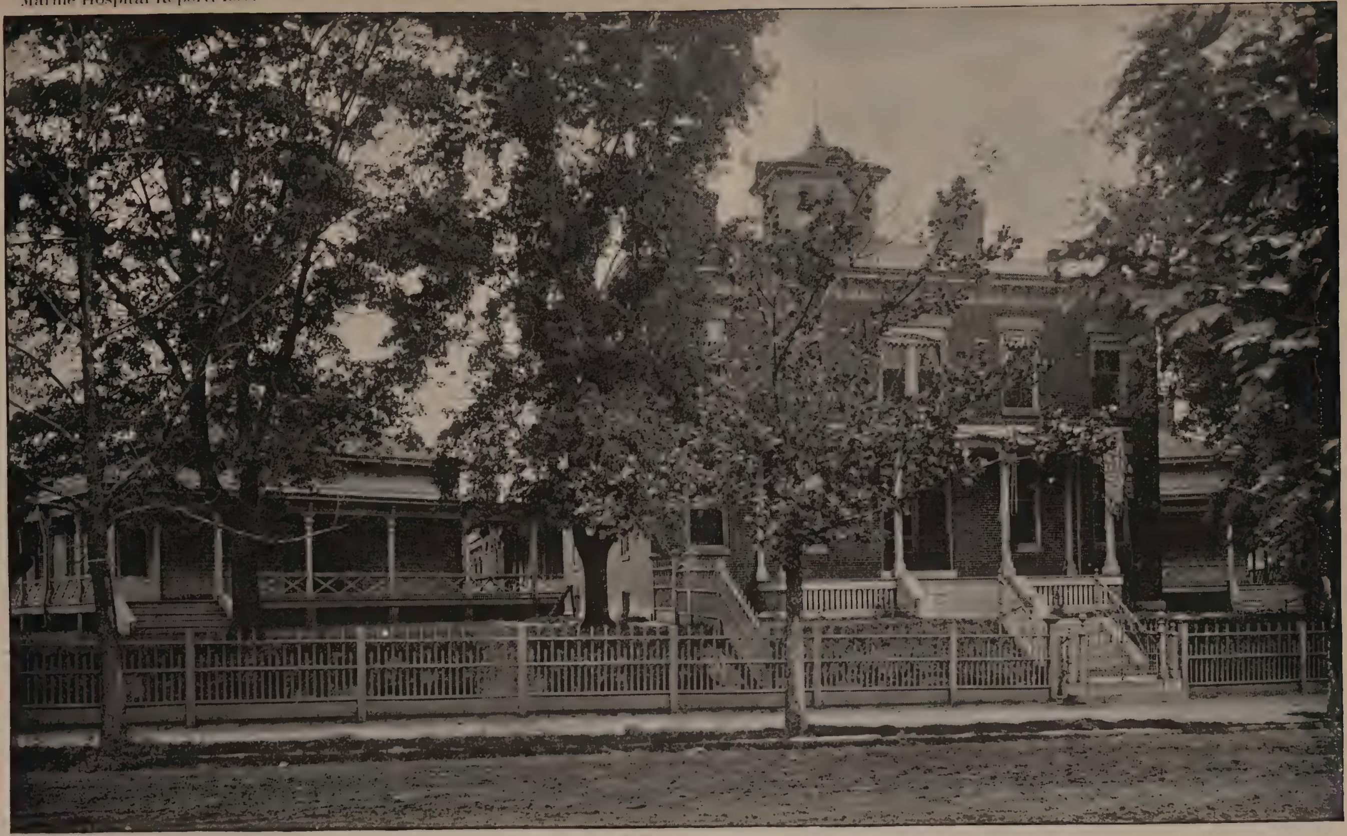
SIR: You are directed to forward without delay a list of the hospital attendants employed at your station, stating the compensation and giving in detail the duties required of each attendant.

Respectfully, yours,

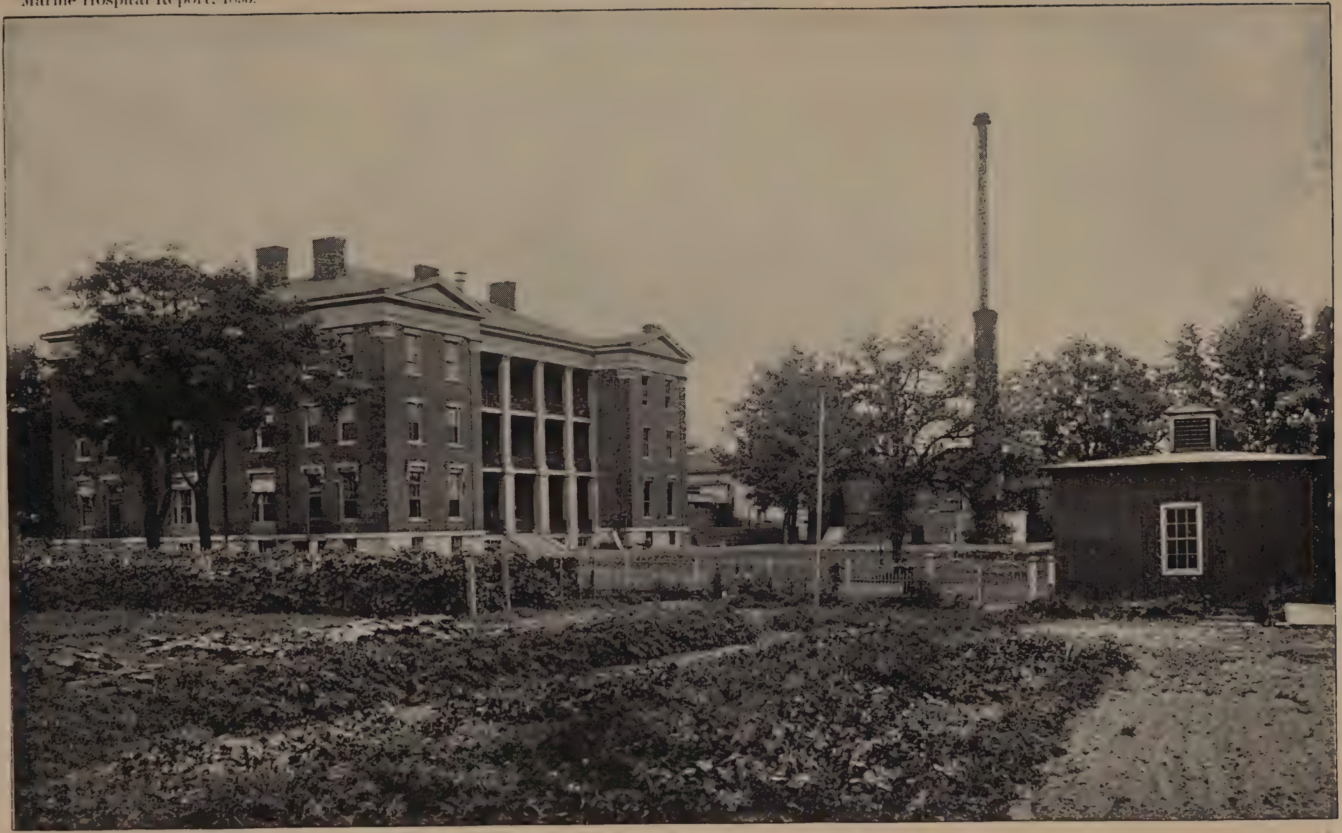
WALTER WYMAN,
Supervising Surgeon-General, M. H. S.



U. S. MARINE HOSPITAL, SAINT LOUIS, MISSOURI. (VIEW 1.)



U. S. MARINE HOSPITAL, SAINT LOUIS, MISSOURI—EXECUTIVE BUILDING AND ONE WARD. (VIEW 2.)



U. S. MARINE HOSPITAL, SAINT LOUIS, MISSOURI. (REAR VIEW.) (VIEW 3.)

CIRCULAR LETTER CONCERNING REPORTS OF NECROPSIES, ETC.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 9, 1895.

Medical officers and acting assistant surgeons, United States Marine-Hospital Service:

Referring to the reports of necropsies annually forwarded to the Bureau, your attention is hereby directed to the necessity of care in their preparation, to the end that they may be of permanent scientific value, and reflect credit upon the Medical Corps. Said reports must be made and signed by a medical officer, the initials of whom will hereafter appear in the printed reports. The initials of the commanding officer forwarding these reports will also appear in the annual report.

You are invited to contribute for consideration, with a view to publication in the Annual Report for 1895, one or more articles of a medical or sanitary character, illustrating the work of the service or relating to its field of operation.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER TO ACTING ASSISTANT SURGEONS CONCERNING COLOR SENSE AND EXAMINATIONS FOR COLOR-BLINDNESS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April —, 1895.

Dr. —— ——,
Acting Assistant Surgeon, M. H. S.

SIR: You are hereby directed to forward to this office without delay a certificate of your ability to properly distinguish colors, signed by a physician competent to make the examination. The certificate will embrace a statement as to either complete or incomplete color-blindness.

Your attention is directed to paragraph 91 of the regulations, and you are informed that no certificate concerning color sense should be given except upon proper official request.

Your attention is further called to page 105 of the regulations, declaring the Holmgren worsted test as the one to be employed. Familiarity with this method is required, and, if necessary, requisition should be made for the test skeins.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER CONCERNING RATIONS FOR HOSPITAL STEWARDS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 21, 1895.

To medical officers in command of United States marine hospitals:

Your attention is hereby directed to so much of paragraph 56 of the regulations as provides that hospital stewards, when on duty in United States marine hospitals, shall be entitled to subsistence. The ration drawn by the steward may be either cooked or uncooked as hereinafter provided, and in either case will include only those articles which are embraced in the contracts, and will be drawn for subsistence only. A cooked ration shall be furnished to unmarried stewards, and it must be served from the hospital kitchen. To provide for those stewards with families an uncooked ration shall be drawn, and the following schedule is herewith adopted as an allowance table for this purpose.

A special record will be kept in the subsistence storeroom book of articles drawn by the steward in accordance with the ration specified below:

Allowance table of uncooked rations for hospital stewards.

Articles.	Unit of daily ration.	Articles.	Unit of daily ration.
Meat or fish, fresh or salt .....pounds..	1½	Tea ....ounces..	½
Bread or crackers ....do...	1	Sugar ....do...	6
Or in lieu thereof, flour........do...	2	Molasses or sirup..........do...	4
Vegetables ....do...	3	Vinegar ....do...	4
Milk ....pint..	1	Pickles ....pint..	½
Eggs..........dozen..	¼	Cheese..........ounces..	4
Butter..........ounces..	6	Spices..........do...	½
Oatmeal..........do...	2	Salt ....do...	4
Rice, hominy, or tapioca ....do...	2	Lard ....do...	8
Coffee or chocolate ....do...	1½	Fruit, fresh or dried..........do...	8

Ice in sufficient quantities for the preservation of rations in a small refrigerator will be allowed. Baking powders, yeast cakes, and flavoring extracts in sufficient quantities for cooking the above-mentioned articles will be allowed.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER CONCERNING REQUISITIONS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 27, 1895.

To medical officers and acting assistant surgeons,
United States Marine-Hospital Service:

Your attention is hereby directed to the subject of special requisitions and the method of preparing them properly for consideration of the Bureau. The columns headed "on hand" and "required" should be filled out in respect to each item listed, and the column headed "remarks" should give in brief the necessity for such articles and their intended location or application. In the case of new or unusual items, involving considerable cost, it will not be sufficient to report none on hand, but an explanatory letter must accompany such requisitions, referring in detail to those particular articles and presenting statements in support of same.

Requisitions for articles of hospital equipment, such as utensils, implements, etc., must not be made in anticipation of needs beyond the fiscal year, or with a view to accumulate a surplus stock in excess of probable loss by breakage or wear.

The subject of repairs to property of the Service will form the basis of separate communications, and in all cases must be accompanied by estimates of the probable cost of same.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

PURVEYING DIVISION.

In the purveying division 434 requisitions for medical and other supplies to meet the needs of 20 marine hospitals and 42 additional relief stations of the Service have been filled.

Eleven national quarantine stations, 2 revenue cutters, and the immigrant hospital at Ellis Island, New York Harbor (under the control of the Immigration Service), have also received their supplies through this division. The requisitions were divided as follows:

Hospital and relief stations	378
Quarantine stations	51
Immigration service	3
Revenue steamers	2

The amount of labor involved in purveying the material called for in these requisitions may be estimated from the following statement of shipments:

Number of packages	2,970
Total weight .... pounds	222,802

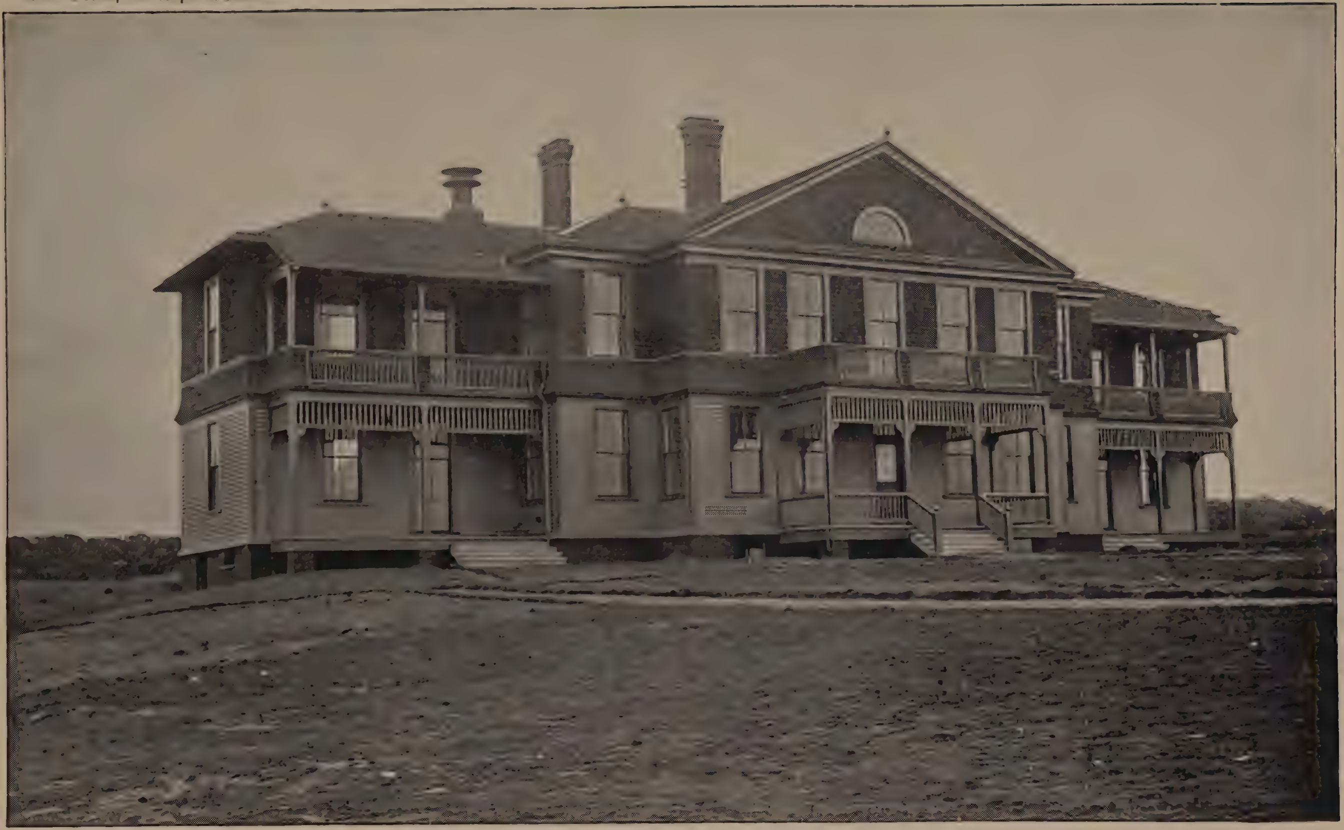
The pharmacal work in this division, carried on under the direction of the chemist and his assistants, shows a total output of 6,328,000 grams of various articles manufactured for issue, of which there were 114 different kinds. These articles are divided as follows:

	Grams.		Grams.
Elixirs	812,000	Miscellaneous	60,000
Fluid extracts	690,000	Sirups	2,138,000
Medicated waters	90,000	Tinctures	1,675,000
Liniments	600,000		
Spirits	263,000	Total	6,328,000

The following is a summary of the cost of the various supplies purchased for issue during the year:

Medical supplies	$14,235.14
Hospital stores	7,643.76
Hospital sundries	10,919.18
Surgical instruments and appliances	2,913.88
Bedding and clothing	4,403.28
Medical books and journals	863.63

Of these amounts the Service was reimbursed in the sum of $5,787.76 for supplies furnished quarantine stations, the Revenue Cutter, and the Immigration Services.



U. S. MARINE HOSPITAL, VINEYARD HAVEN, MASSACHUSETTS. (FRONT VIEW.)

U. S. MARINE HOSPITAL (NEW), VINEYARD HAVEN, MASSACHUSETTS. (REAR VIEW.)

FINANCIAL STATEMENT.

FINANCIAL STATEMENT.

RECEIPTS AND EXPENDITURES, UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE FISCAL YEAR ENDED JUNE 30, 1895.

The balance available at the commencement of the fiscal year was $71,330.41, and the receipts from all sources, $533,768.69.

The expenditures were $575,569.87, leaving on hand at the close of the fiscal year $29,529.23

SUMMARY.

Balance July 1, 1894	$71, 330. 41
Repayment, care and treatment foreign seamen, etc	12, 527. 91
Receipts tonnage tax collected	521, 240. 78
Total available during fiscal year	605, 099. 10
Expenditures	575, 569. 87
Balance June 30, 1895	29, 529. 23

STATEMENT BY APPROPRIATIONS.

Quarantine service, 1895.

Amount appropriated act August 18, 1894	$125, 000. 00
Repayments:	
Care foreign seamen, etc	312. 64
Account recovery wreckage from vessel	666. 66
Total available during fiscal year	125, 979. 30
Expenditures during fiscal year	124, 478. 11
Available balance July 1, 1895	1, 501. 19

Summary of expenditures on account of quarantine stations, fiscal year ended June 30, 1895.

Station.	Maintenance of stations—Salaries of officers, subsistence supplies, and miscellaneous.	Station.	Maintenance of stations—Salaries of officers, subsistence supplies, and miscellaneous.
Reedy Island	$18, 254. 91	South Atlantic	$15, 904. 76
Cape Charles	14, 275. 17	San Francisco	10, 813. 25
Delaware Breakwater	11, 313. 73	Port Townsend	6, 928. 16
Brunswick, Ga	5, 247. 67	Telegrams and cablegrams	71. 12
Gulf	17, 959. 52		
Key West	19, 090. 06	Total	124, 478. 11
San Diego	4, 619. 76		

Preventing the spread of epidemic diseases.

Balance July 1, 1894		$601, 773. 79
Repayment amount allotted September 6, 1893, for ballast wharf, South Atlantic quarantine		5, 000. 00
Total available during fiscal year		606, 773. 79
Expenditures:		
Foreign medical service, including Havana, Cuba; salaries, traveling, and miscellaneous	$8, 623. 60	
Sanitary inspectors in United States, salaries, traveling expenses, etc	5, 217. 62	
Special inspection duty, quarantine stations	2, 633. 63	
Camp Low, N. J., pay of officers and employees, subsistence supplies, etc	3, 411. 49	
Brunswick, Ga., sanitary inspector, custodian at Detention Camp and miscellaneous	2, 336. 92	
Gulf, repairs to hospital building, Ship Island	1, 085. 72	
San Diego, Cal., disinfecting machinery	7, 000. 00	
Cape Charles (Fishermans Island), cooking apparatus, etc., $3,532.50; pump house, bath house, etc., $3,285	6, 817. 50	
Reedy Island, pay of superintendent, construction of surgeon's quarters	118. 70	
Washington, D. C., portable disinfecting machinery	2, 886. 00	
Expenditures on account delegate Sanitary Conference, Paris, France	3, 000. 00	
xperimental investigation laboratory, Marine-Hospital Service, act March 2, 1895	900. 00	
Total		44, 031. 18
Balance July 1, 1895		562, 742. 61

Appropriations for quarantine stations, act August 1, 1888.

Station.	Balance July 1, 1894.	Expenditures during fiscal year.	Balance June 30, 1895.
Cape Charles	$16, 088. 85	$13, 270. 92	$2, 817. 93
Delaware Breakwater	1, 732. 58		1, 732. 58
Key West	12, 621. 32	2, 375. 10	10, 246. 22
Port Townsend	12, 993. 99	6, 473. 48	6, 520. 51

Appropriations for quarantine stations, acts August 1, 1888, and August 5, 1892.

South Atlantic, balance July 1, 1894	$123. 16
Expended to June 30, 1895	
Balance July 1, 1895	123. 16

Gulf quarantine, acts March 3, 1891, August 5, 1892, and August 18, 1894.

Balance July 1, 1894	$1, 050. 52
Appropriation act August 18, 1894, Ship Island	5, 000. 00
Total	6, 050. 52
Expended to June 30, 1895	1, 904. 20
Balance July 1, 1895	4, 146. 32

San Francisco quarantine, completing station, act August 5, 1892.

Balance July 1, 1894	$132.85
Previously transferred to architect but unexpended	9.25
Total	142.10
Expended to June 30, 1895	
Balance July 1, 1895	142.10

San Francisco fumigating steamer.

Balance July 1, 1894	$519.57
Expended to June 30, 1895	
Balance July 1, 1895	519.57

Key West quarantine, disinfecting machinery.

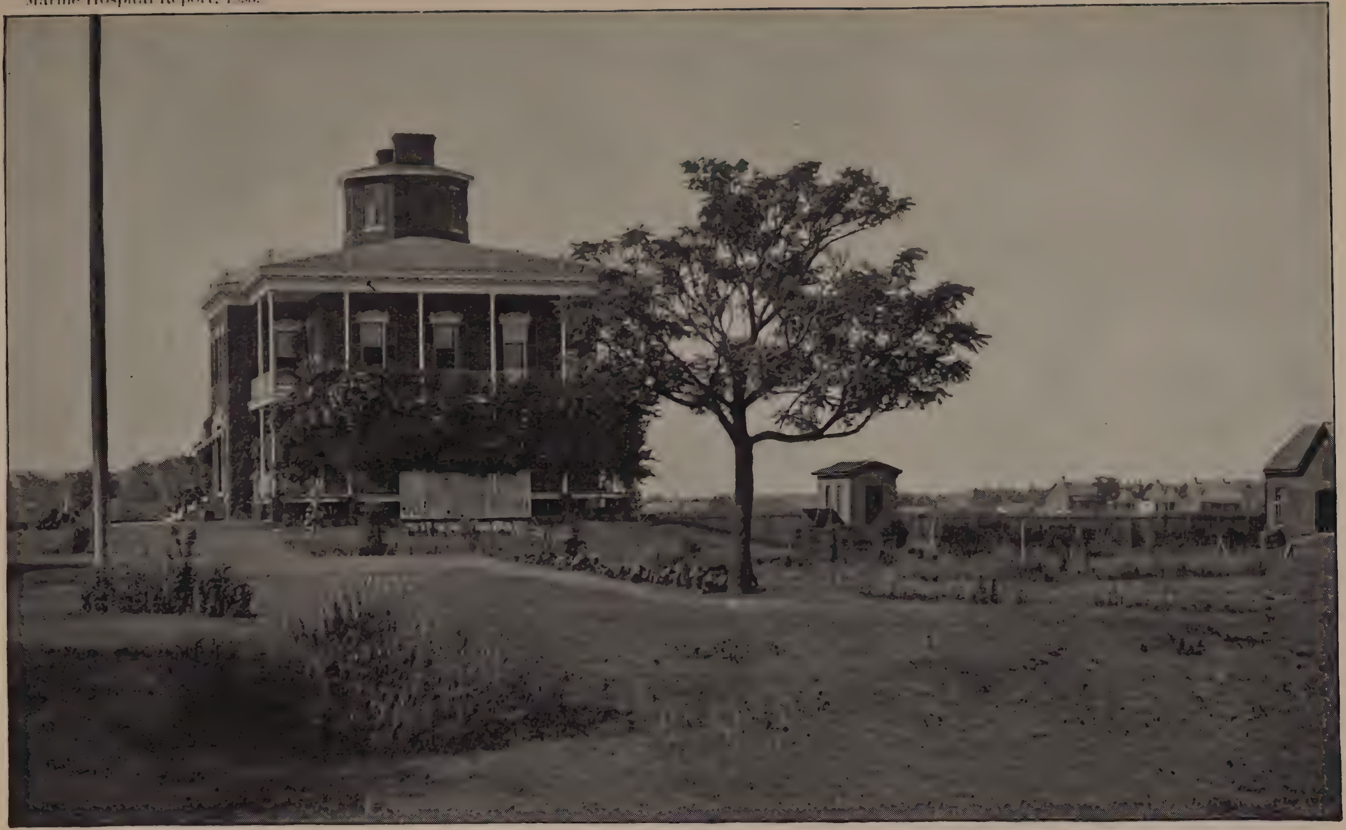
Balance July 1, 1894	$900.40
Expended to June 30, 1895	
Balance July 1, 1895	900.40

Chesapeake Bay quarantine station, act March 3, 1893.

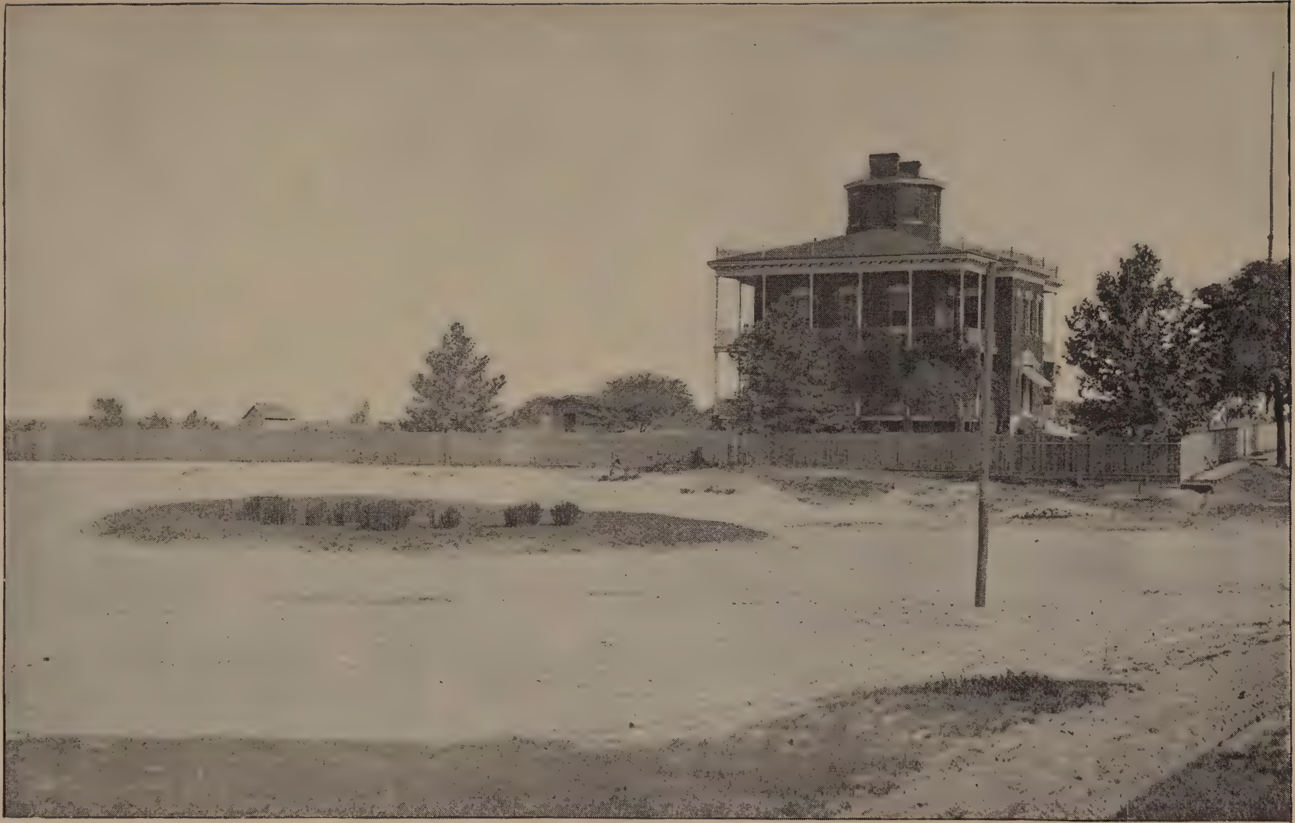
Balance July 1, 1894	$6,935.00
Expended to June 30, 1895	
Balance July 1, 1895	6,935.00

TONNAGE TAX.

I have respectfully to invite attention to the reduced receipts from the tonnage tax, caused by the passage of the act approved March 2, 1895, entitled an act to amend section 1, of chapter 398, of the law of 1882, entitled "An act to provide for deductions from the gross tonnage of vessels of the United States." The loss to the marine-hospital fund in consequence of this legislation is estimated at $30,000 per annum. It is hoped that this loss will be met by legislation looking to a repeal of those sections of the act of June 19, 1886, which exempt the vessels of certain nations from tonnage tax in this country in return for almost worthless exemptions of American vessels in the ports of those nations. The effect of this repeal would be to increase this fund to a sufficient amount for the maintenance of the Marine-Hospital Service. Pending this action on the part of Congress, it will be necessary to submit a deficiency estimate of $25,000.



U. S. MARINE HOSPITAL, WILMINGTON, NORTH CAROLINA. (VIEW 1.)



U. S. MARINE HOSPITAL, WILMINGTON, NORTH CAROLINA. (VIEW 2.)

REPORTS OF FATAL CASES, WITH NECROPSIES.

REPORTS OF FATAL CASES, WITH NECROPSIES.

In the following reports the initials of the medical officer making the autopsy, followed by the initials of the medical officer in command forwarding the same, are appended to all reports received since the issue of circular letter of April 9, 1895.

INFLUENZA COMPLICATED BY LOBAR PNEUMONIA.

H. H.; negro; aged 40 years; born in Kentucky; admitted to United States Marine Hospital at Cincinnati March 13; died March 20, 1895.

Clinical history.—Patient was admitted to hospital complaining of chills and fever, anorexia, constipation, and general boneache. When he was admitted he had neither cough nor pain in his chest. Temperature rose to 40.2° C. Within a week pneumonic symptoms developed. Physical examination revealed dullness on left side of chest posteriorly, crepitant rales at apex anteriorly, and no breath sounds posteriorly. Diplococci were present in the sputum. Patient's condition gradually grew worse, delirium occurring, and death closed the scene March 20, 1895.

Necropsy (thirty hours after death).—Rigor mortis was present. Heart and pericardium: Pericardium contained 75 c. c. of fluid. Heart weighed 330 grams, and the valves were normal. Lungs and pleuræ: Left lung weighed 1,750 grams; it was adherent throughout to thoracic wall and diaphragm; the upper lobe was intensely congested and infiltrated with fibrin; the lower lobe had undergone gray hepatization. Left pleural sac contained some fluid. Right lung weighed 1,030 grams, was adherent to thoracic wall, and was congested throughout. All other organs that were examined were normal.

P. C. K.

ENTERIC FEVER.

Case 1.

J. G.; aged 22 years; nativity, Finland; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., July 6, 1894; died July 21, 1894.

History.—Patient had been sick four days previous to admission. Had diarrhœa, four or five stools a day; some delirium, and a fever ranging from 40.1°C. in the morning to 40.4° C. in afternoon. The pulse was 100 and fairly strong; was given cold pack, fifteen minutes duration, every three hours; this reduced the fever from 40.4° C. to 38.1° C., and at first some improvement in the nervous symptoms was noted. The fever increased in severity—40.4° C. in the morning and 41.1° C. in afternoon. The heart soon showed the effect of the high temperature, becoming weak and the pulse quickened. The temperature the day before death reached 41.4° C.

Necropsy (fifteen hours after death).—External appearances: Body well nourished; rigor mortis marked; post-mortem lividity extensive. Thoracic cavity: Pleura normal; heart and pericardium normal; the lungs of normal size and congested.

Abdominal cavity: Liver much enlarged and some fatty degeneration; spleen enlarged, congested, and softened; stomach normal; small intestine, Peyer's patches were externally ulcerated; several patches of ulceration were 3.5 cm. long and 2 cm. wide. Some of the solitary glands were enlarged. Peritoneum normal; mesenteric glands much enlarged; large intestine normal; pancreas normal; kidneys congested.

CASE 2.

G. L.; aged 32 years; nativity, United States; was admitted to the marine ward of Sisters of Charity Hospital, Buffalo, N. Y., on June 12, 1894, with evident symptoms of enteric fever. He complained but little; no diarrhœa. Morning temperature, 102° F.; evening, 104° F. During second and third week evening temperature sometimes was as high as 106° F. He was given a cold bath, when it ran above 103° F. During fourth week had six hemorrhages from bowels, and these caused his death. There was slight diarrhœa for three or four days preceding the hemorrhages.

Necropsy (five hours after death).—Heart and lungs normal; deep inflammation of ileum at once apparent when intestines were exposed. Vermiform appendix, too, was inflamed and swollen, omentum adherent to jejunum in two places, where ulcers had nearly perforated. Upon opening jejunum widespread inflammation with a great many ulcerated patches was seen. Mesenteric glands of small intestines generally enlarged. Other organs normal.

W. J. P.

CASE 3.

C. S.; aged 19 years; nativity, Germany; admitted to United States Marine Hospital, Chicago, Ill., November 1; died November 5, 1894.

History.—On admission he was hardly able to answer any questions, but stated he had been sick about a week and had had headache and pain throughout body; no chill or diarrhœa. His face was flushed, tongue dry and brown, sordes on teeth and lips, abdomen tympanitic, not sensitive to pressure, six to ten rose spots on trunk anteriorly; pulse of good strength, 100 to the minute; evening temperature, 40.4° C. Delirium present most of time, on a few occasions violent. No stool except after enema. Temperature remained between 39.5° and 40.5° C. As the coma deepened, pulse and respiration became accelerated, the former reaching 160, the latter 55 to the minute. Urine: sp. gr., 1,025; reaction acid; small amount of albumen present.

Treatment.—Eight ice-cold sponge baths a day; one daily cold-water enema of about 2,000 c. c.; hydronaphthol, 0.30 gram five times a day; whisky as a stimulant.

Necropsy.—Pericardial sac and heart appeared normal. Weight of heart, 310 grams. No adhesion in either pleural cavity. Great congestion of lungs. Weight of lungs: Left, 380 grams; right, 510 grams. The last meter and a half of the small intestines presented several stages of inflammation and ulceration of Peyer's patches and solitary follicles; at highest point, infiltration and great thickening with velvety surface; no necrosis, becoming progressively worse below until extensive ulceration was reached in last 30 to 45 cm. One ulcer, just above ileocæcal valve, was 10 cm. long. There was one small ulcer in large intestine just below the valve. The liver presented a normal appearance; lobules a trifle indistinct; weight, 2,100 grams. Kidneys not apparently diseased; weight, left, 180 grams; right, 140 grams. The spleen measured 21 by 12.5 by 6 cm.; large and soft; weight, 540 grams. The brain presented a normal appearance; dura slightly adherent at vertex; weight, 1,470 grams.

CASE 4.

Perforation of intestine.

B. H.; aged 25 years; nativity, Holland; admitted to United States Marine Hospital, Chicago, Ill., September 7; died October 14, 1894.

History.—Sickness began a week before admission with pain in back, headache, anorexia, diarrhœa, and fever; no chill; epistaxis twice. On admission there was diarrhœa, a brown tongue (which would seem to show that the disease was further advanced than his history would indicate), tympanites, no rose spots; temperature 40.5° C. The diarrhœa and tympanites continued, and there was sensitiveness to pressure in right iliac region. After the first week in hospital a few rose spots were visible. The temperature gradually lowered during eighteen days after admission until it was 37° C. during whole day. Pulse strong, below 100. But during this period on the 14th, 18th, and 22d of September, the evening temperature rose 1½° higher than it had been the evening before, but the following morning it had in each case followed the general line of descent. On September 13 the night nurse reported a little blood in one stool. On September 17 and 18 there was a slight change in diet which may have led to increase of temperature on the 18th, and on September 22 there was complaint of sharp pain in left chest near last ribs. During the four days following the normal temperature previously mentioned there was daily increase to 40° C. (September 29). The pain in left chest and at times in left hypochondriac region continued, at least with deep inspiration. October 1 some moist rales were found in left chest posteriorly; no dullness. October 6 a few new rose spots noted. The temperature again began a gradual descent; diarrhœa continued rather profuse, and emaciation was marked in spite of large amount of milk apparently well digested. October 8, pain at lowest ribs on right. October 9, chill and cold sweat in early morning. Respiration increased in frequency. Tympanites more marked. Abdomen distended and very sensitive to pressure. October 10, signs and symptoms of yesterday more marked; evident peritonitis. Condition grew steadily worse from this time. Slight amount of vomiting; stools frequent; no hæmorrhage. Temperature last five days 37.2° C. a. m., 38.2° C. p. m. Pulse weak, 110, increasing to 140.

Treatment.—It may be noted that in this case the line of treatment was modeled after that outlined in communications to the Journal of the American Medical Association of February 10, March 10, and April 14, 1894, by John Eliot Woodbridge, M. D., of Youngstown, Ohio. At the outset the following was used for four days: Podophyllin 0.06 gram, hydrarg. chlorid. mit. 4 grams, guiacol carbonat. 24 grams, thymol 20 grams, menthol 4 grams, sacchar. alb. 64 grams. Dose, 0.015 gram every half hour during the day and every hour to two hours at night. The diarrhœa was rather profuse, hence, in place of the above, was substituted: Guiacol 5 grams, eucalyptol 10 grams. Dose, 5 drops in capsule every two hours day and night. In two days this dose was increased to 8 drops, and this was continued until September 28, the time of the recrudescence of fever. At this date return was had to the original prescription detailed, and in same dosage, and it was continued to the end. The patient had one warm sponge bath daily. Turpentine stupes were applied to relieve the pain in chest and abdomen. Bismuth subnit. was employed for the diarrhœa, and strychninæ sulphate and whisky as soon as the heart showed signs of weakening.

Necropsy (*sixteen hours after death*).—Body emaciated. Nothing abnormal in pericardial sac or heart or thoracic aorta. Heart weighed 320 grams. In the left pleural cavity were adhesions to diaphragm and over lower lobe posteriorly; in the right one slight adhesion to diaphragm. In the lungs congestion of lower lobes only was noted. Weight of each lung 330 grams. The abdominal cavity contained a large amount of pus and fæces. There were many weak adhesions, omentum and intestines agglutinated. The peritoneum in many places had a black color. Stomach and intestines generally much inflated. The small intestines contained a large amount of fæcal matter, no blood. Peyer's patches thickened, about half a dozen with ulcerated surfaces toward lower portion, and 35 cm. above cæcum was a perforation 0.75 cm. in diameter. Large intestine and rectum contained no ulcer and no blood. The liver was dark brown, weighed 1,870 grams, and its lobules were indistinctly marked. Kidneys: Left, 150 grams; right, 140 grams; capsules not adherent; both contained much blood. Spleen large and soft, 17 cm. long; weight, 300 grams.

CASE 5.

C. W.; white; aged 20 years; born in West Virginia; admitted to United States Marine Hospital at Cincinnati April 24; died May 29, 1895.

Clinical history.—When patient entered hospital he complained of headache, occasional dizziness, and diarrhœa. He had had malaise for a week or so. Epistaxis had not occurred. There were some few spots on abdomen, which disappeared on pressure. There was tenderness in right iliac region. Temperature was normal. Patient rapidly grew worse; temperature rose, diarrhœa increased, delirium developed, and weakness became greater. The stools and temperature were not typical. Patient steadily grew worse; superficial abscesses and bedsores developed, delirium continued, deafness developed, diarrhœa persisted, and emaciation became extreme. In the fourth week there was some improvement, but a relapse occurred, and despite the free stimulation that patient received he rapidly sank. Death occurred May 29, 1895.

Necropsy (ten hours after death).—Height of subject was 1.86 meters. Circumference at shoulders was 0.9 meter. Rigor mortis was absent. Body was terribly wasted. Intestines, ileum, cæcum, and colon presented numerous ulcers, some of which were developing, others were healing, and others were healed. Many other solitary and agminate glands were hyperemic, swollen, and hardened. Perforation had not occurred. The greater part of the intestinal mucosa was inflamed and indurated. Peritoneal adhesions were found. The peritoneal sac contained an excessive quantity of fluid. Spleen weighed 328 grams and was congested and enlarged. Macroscopical examination of other organs failed to find any abnormal condition.

P. C. K.

CASE 6.

Perforating ulcer—Limited suppuration—Sepsis.

W. H. K.; aged 50 years; native of West Virginia; entered the marine ward of the Mercy Hospital, Pittsburg, Pa., December 24, and died December 30, 1894.

History.—Malaise, feverishness, and loss of appetite for past three or four weeks, with more or less diarrhœa. Ten days since he was taken with severe pain in abdomen and acute diarrhœa, at Cincinnati, where he received dispensary treatment; also four days later at Parkersburg, W. Va., with the result of checking diarrhœa slightly. When seen he presented a pallid countenance, moist forehead, and an anxious facies. Pulse, 110; temperature, 39.5° C. He was loth to give up and go to hospital, but was informed of his serious condition and acquiesced. Seen a few hours later, abdomen slightly distended from paretic bowel; gurgling in right iliac fossa; pain on pressure, and the presence of an ill-defined mass deep in the loin. Some nausea, no vomiting at any time, no spots on abdomen; temperature 39.5° C.; pulse, 112. Evidence of mental impairment. Especial effort was made to differentiate this condition as due to appendicitis, but operative measures were clearly contraindicated by the extremely weak condition of the patient. Measures to make him as comfortable as possible were taken. Death from septic exhaustion on December 30, 1894.

Necropsy (ten hours after death).—Limited to opening abdomen and examination of its contents, in deference to the request of his friends. Some rigor; some hypostasis about loins; body well nourished; medium incision; peritoneum inflamed; mesentery engorged; glands swollen; intestine walls paretic and dilated; in right iliac fossa an agglutinated mass of intestine, shut off from the general cavity by plastic lymph. Posteriorly this mass had softened and broken down, with drainage of a quantity of purulent fæces into the dependent spaces of the loin and upward beneath the right lobe of the liver, which had softened and broken down, presenting a cavity as large as a lemon, with gangrenous walls; gall cyst full. The mass dissected out showed about 20 cm. of the small intestine next to the valve gangrenous and adherent to the caput coli and cæcum. Appendix adherent in mass, but not diseased, nor was the cæcum. The gangrenous small intestine was perforated in several places, through which the contents passed (partly) into a cavity or abscess with softened walls, eroded posteriorly, and giving exit to the purulent fæcal fluid noted as draining upward and softening the liver. The mucosa of small intestine was very generally ulcerated. Whilst there is room for doubt, the autopsy rather strengthens the antemortem diagnosis of enteric perforating ulcer, with plastic protection and limitation of the suppurative process, and, finally, septic exhaustion and death.

CASE 7.

R. C.; aged 18 years; nativity, Arkansas; negro; admitted to the United States Marine Hospital, Memphis, Tenn., March 22; died March 26, 1895.

History.—The patient had apparently been taken sick six days before his admission to the hospital. At the time of admission he had symptoms pointing toward enteric fever, but not distinctive of it. There was mental confusion, which became later maniacal delirium, and this was succeeded in turn by a dull and partly comatose condition, which ended in death. The day before death the patient's temperature went down to normal, and rose only slightly thereafter. The course of the disease was rapid and peculiar, and the diagnosis was in doubt. There were no symptoms of meningitis except the delirium.

Necropsy (*seven hours after death*).—The examination was made by Dr. William Krauss, of Memphis, Tenn. No post-mortem lividity; rigor mortis strongly marked; general nourishment fair; pupils somewhat dilated. The heart weighed 243 grams. The pericardial sac contained about 25 c. c. of clear serum. All the valves of the heart were competent. The bronchial lymph glands were enlarged but soft. The left lung weighed 381 grams. It was extensively adherent to the chest wall, the pleural cavity being almost obliterated. A number of tubercular nodules were found in the apex of this lung. There was considerable hypostatic congestion. The right lung weighed 417 grams. Its pleural cavity was free of adhesion. It was affected with hypostatic congestion and oedema. No tubercle was found in it. The peritoneal cavity contained no effused liquid. The mesenteric vessels were congested, and the glands were much enlarged but soft. The lower portion of the ileum was opened, and its mucous membrane was examined. Peyer's patches were found to be affected, some having merely the "shaven beard" appearance, while in others there were inflamed and swollen spots which were ready to break down into ulcers. The diagnosis of enteric fever in an early stage was thus confirmed. On the lower border of the left lobe of the liver was found a small patch of tissue having the appearance of being in the state of amyloid degeneration. The surface of the liver was mottled in color; its weight was 1,825 grams. The left kidney weighed 199 grams; its capsule was slightly adherent. The right kidney weighed 193 grams. The tissue of the renal cortex was normal in appearance, except for being unusually pale. The spleen was large, and weighed 597 grams. Its tissue contained occasional minute cheesy foci having the appearance of miliary tubercle. The cranium was opened and the meninges of the brain were examined. They were congested and the perivascular and the arachnoid lymph spaces were well filled, there being evidently some serous effusion. The convolutions of the brain were somewhat flattened. There was no appearance of meningitis in any part.

A. C. S.

CASE 8.

P. V.; aged 28 years; nativity, Norway; admitted to marine ward, Cleveland City Hospital, June 19; died June 23, 1895.

History.—Patient had been sick, but kept at work for ten or twelve days before his admission to hospital on the 19th with enteric fever. General condition appeared good, with no untoward symptoms until the 23d, when symptoms of heart failure suddenly appeared—cyanosis (very rapid and weak heart action)—and he died about three hours after the onset.

Necropsy (*fifteen hours after death*).—Post-mortem lividity and rigor mortis very marked; general nourishment good; pupils equal and dilated. Heart: Weight, 320 grams, felt flabby, without the firm texture of a normal heart. Incision of its walls showed them to be somewhat thinner than normal, and the muscular texture had a muddy look, all indicating degeneration. Lungs: Weight of right lung, 630 grams; left lung, 655 grams; both normal, except for some passive congestion, apparently recent, and more marked in lower lobes; no oedema. Liver: Weight, 2,450 grams; enlarged and some degeneration apparent microscopically. Spleen: Weight, 470 grams—about double the normal size, very dark in color, congested, and very friable. Gastro-intestinal tract: Examination of small intestines showed Peyer's patches to be very much involved, several being from 4 to 5 inches in length; ulceration very extensive, and in two or three places had eroded all the coats of the bowel except the peritoneum; ileum very much congested throughout, the remainder of the bowel being normal. Mesenteric glands were very much involved, appeared in large masses, individual glands being much enlarged, and all soft and pulpy in consistence. Kidneys: Weight of each, 202 grams; normal, except for some passive congestion. Nervous system not examined.

E. P.

CASE 9.

Intestinal perforation.

C. H. W.; aged 21 years; nativity, England; admitted to United States Marine Hospital San Francisco, Cal., September 22, died October 3, 1894, at 4.15 o'clock p. m.

History.—On admittance complained of weakness, pain over sternum, and coughing. He had been ill nine days and looked very anæmic. Urine was loaded with albumen. A diagnosis of acute nephritis was made. There was no diminution of appetite, and the bowels were regular. Patient was a British seaman on a sailing vessel which had reached this port after a long voyage; illness began the day after anchor was cast; the patient had not been ashore During period of treatment in hospital the morning temperature was 39° C., reaching nearly 40° C. in the evening. Patient lay in a semistupor, only partially rousing to take food. On the morning of the 1st of October he was seized with sudden and violent pain in the abdomen. The temperature dropped to normal, but during the day arose to 39° C. Tympanitis developed; the pain continued; the pulse became small and wiry, and death occurred the following day.

Necropsy (*seventeen hours after death*).—Purplish discoloration of skin and rigor mortis; heart normal; slight passive congestion of the lungs. The peritoneum exhibited an intense grade of inflammation and contained a slight purulent exudate. Liver normal; spleen was soft and pultaceous, and weighed 260 grams. Both kidneys were slightly swollen, and were reddened and inflamed along the tubules. The lower 3 feet of the ileum contained numerous necrotic or ulcerated areas in the seat of Peyer's patches. One patch showed several ulcers, divided by septa of mucous membrane. Some of the ulcers were quite superficial; others involved both submucosa and muscularis. One of the ulcers had perforated, causing peritonitis. The ulcers were irregularly crescentic in outline. Other organs not examined.

CASE 10.

J. S.; aged 19 years; admitted to United States Marine Hospital, Baltimore, Md., December 26, 1894; died January 2, 1895.

Clinical history.—Illness began with headache and severe pains all over the body six days before admission to hospital. Two days later patient had a chill, accompanied by severe diarrhœa. Had ten evacuations first day and complained of severe headache and pain in abdomen. Diarrhœa continued, but there were no further chills. On admission to hospital December 26, 1894, temperature 40.4 C.; pulse, 84; diarrhœa quite marked, greenish color. The temperature during time in hospital ranged from 38° C. to 40.6° C., and the pulse from 84 to 125. Diarrhœa continued. There was wakefulness, but no delirium. Medication had little effect. Temperature was reduced by cold baths. On the afternoon of January 2, 1895, all the symptoms grew suddenly worse. Marked tympanites set in; pulse became very rapid and weak; surface of body was bathed in cold perspiration. There was marked pain in abdomen, evidencing rupture of bowel and consequent collapse. Death occurred at 9.30 p. m., January 2, 1895.

Necropsy (*ten hours after death*).—Body well nourished; livores well marked on back and neck; abdomen much distended. Heart: Weight, 270 grams; valves normal and healthy; ante-mortem clot in left ventricle entangled in the chordæ tendineæ. Lungs were not removed; section made in situ; normal except some slight congestion. Stomach very much distended, containing gas and partially digested milk. Jejunum: Vessels were congested with some enlargement of the solitary glands. Ileum: In upper part the glands (solitary and Peyer's) were enlarged, with here and there a patch of beginning ulceration; lower down the glands showed extensive ulceration, some being destroyed down to the peritoneal covering, others elevated 1.75 cm. above the lumen of the bowel. Near the ileocæcal valve they had nearly closed the lumen of the bowel, here being thickly congregated. In this situation (15 cm. from the valve) a large ulcer (10 by 5 cm.) had broken down in the center, perforating the bowel and forming an aperture about 1.75 cm. in diameter. Through this opening some fecal matter (semisolid) had found its way into the peritoneal sac. The whole intestinal canal was filled with a light-yellow fluid containing small lumps of partly digested milk. Large intestine was to all appearances normal. All the mesenteric glands were enlarged and stood out like beans. Spleen: Weight, 630 grams; very large, soft, and pultaceous; very dark. Liver and kidneys apparently normal.

S. N.

CASE 11.

Perforation.

A. T.; aged 38 years; nativity, Norway; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, S. C., July 10, 1894; died July 22, 1894.

History.—Had been ill for eight days before admission with fever, constant headache, and slight diarrhœa; had been exposed to malaria. Quinine in full doses was given for two days but did not control temperature, which rose to 40.5° C. in spite of cold bathing. Guaiacol (2 c. c.) was rubbed into skin of abdomen and temperature fell. This was repeated at first every four hours, but later the dose was diminished to 1 c. c. twice a day. This sufficed to control temperature and no symptom of cardiac depression was observed. Profuse sweating occurred one hour after each dose. This was accompanied once by a slight rigor. Diarrhœa persisted, but there was no iliac tenderness until July 17. Patient's condition was very favorable until the 21st, when he was seized with severe pain in the right iliac region. Pain and tenderness quickly spread to the entire abdomen, which did not, however, become tympanitic at any time. The temperature rose, the pulse became rapid and feeble, the face became livid and anxious, and death occurred within twenty-four hours after the occurrence of perforation.

Necropsy (*seven hours after death*).—Rigor mortis present; body well nourished and muscular. Thorax: There were a few recent adhesions in both pleural sacs. The lungs were congested and dark in color, but crepitant throughout. The heart muscle was rather soft but otherwise normal. Abdomen: There was no tympanitis. On opening the cavity the peritoneum, both visceral and parietal, was of a dark, livid color. The intestines were covered with recent exudate. A very small perforation was found in the ileum about 25 cm. from the ileocæcal valve. The ileum was opened and the agminate and solitary glands found to be enlarged, showing the "shaven beard" appearance. Only three small ulcers were found, but these were very deep, with sharply cut edges. One of them had perforated the bowel, and the others had reached the peritoneal coat. The spleen was large, dark, and soft. The other organs were apparently normal. The brain was not examined.

CASE 12.

H. W.; aged 25 years; nativity, Sweden; admitted to the marine ward, German Hospital, Philadelphia, Pa., July 9; died July 12, 1894.

History.—Was in an extremely weak condition when admitted, giving a history of having been taken sick about ten days before with vomiting and diarrhœa. After the first day of the disease he had a chill and then became very weak. Physical examination revealed slight dullness over the base of the left lung, and a diagnosis of beginning pneumonia was thought to be appropriate, but a positive diagnosis was not made until more diagnostic symptoms were present. On July 11 he passed a bloody stool, and on the morning of July 12 he passed another. During the afternoon of the same day he had several more bloody stools, also passed some bloody urine and vomited some blood. He sank rapidly and died 4.15 p. m. His temperature on admission was 40° C., after which it varied from 38.3° C. to 40° C. After he had passed the first bloody stool enteric fever was suspected, but in the absence of any more positive symptoms the diagnosis was doubtful.

Necropsy (twelve hours after death).—External appearances: Body well nourished; post-mortem lividity marked; rigor mortis slight. Thoracic cavity: There was no exudation in pleural cavities. Œdema was present at the posterior part of both lungs, and small hemorrhages were also found in these organs. The heart was pale and flabby, the fibers standing apart (acute myocarditis), otherwise normal. Abdominal cavity: Spleen was twice its normal size, the lymphoid elements being distinct; liver slightly enlarged, pale and cloudy; kidneys enlarged, cortex fatty; pancreas normal. Intestines: There was considerable bloody liquid in the colon. About a dozen ulcerated Peyer's patches were found in the lower ileum. Localized peritonitis opposite ulcers (slight). Mesenteric glands enlarged considerably. Slight hemorrhagic injection in bladder and also in mucosa of the stomach.

INTERMITTENT FEVER (PERNICIOUS).

Chronic interstitial nephritis.

J. F. M.; aged 47 years; nativity, New York; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, S. C., November 16; died November 23, 1894.

History.—Patient had had chills and fever for five days; had been exposed to malaria for a long time. When admitted temperature was but little above normal. There was constant nausea, with vomiting of bilious matter. Occasional hiccough was an annoying symptom. The skin was of a dark-brown hue. The day after admission he passed 30 c. c. of highly albuminous urine. Four days later he passed about 50 c. c. of urine involuntarily. This was all the urine passed during eight days. The temperature after the third day became subnormal. Examination of the blood showed the presence of the plasmodium in considerable numbers. There was much deformity and destruction of red corpuscles. There was a slight systolic murmur at the apex of the heart and decided accentuation of the second sound over the aortic valves. The radial arteries were rigid. Suppression of urine continued in spite of treatment; patient became delirious, and finally comatose before death.

Necropsy (nineteen hours after death).—Rigor mortis; body bronzed; subcutaneous fat slightly bile-stained; abdominal muscles of a slaty hue. The lungs were pale, moderate hypostatic congestion, otherwise normal; there were no pleuritic adhesions. Pericardium normal; considerable amount of fat beneath visceral pericardium. There was marked hypertrophy of the left ventricle, and irregular thickening and atheromatous patches in tricuspid and mitral valves; these valves slightly incompetent; aortic valves competent, but atheromatous; atheromatous patches in intima of ascending aorta. Heart cavities contained decolorized clots adherent to valves. The liver was slightly enlarged, firm, and contained a considerable quantity of blood; there were a few patches showing fatty change on the surface, and large portions of the organ were of a deep slate color; other portions normal in appearance. Spleen very small and abnormally firm. The fibrous trabeculæ were very prominent on section; color normal. Both kidneys showed typical fibroid degeneration in an advanced stage. The organs were very small and firm and the cortex very thin; portions of cortex were torn off with the capsule; portions of both organs were pigmented. The bladder contained about 50 c. c. of urine. Other organs apparently normal. Brain not examined.

SECONDARY SYPHILIS—ABSCESS IN LARYNX.

Case 1.

L. A; aged 40 years; nativity, Ireland; admitted to United States Marine Hospital at San Francisco, Cal., on August 2, and died August 31, 1894, at 12.30 o'clock a. m.

History.—On admittance patient complained of syphilitic lesions as follows: Several large tubercular syphilides on scalp, forehead, trunk, arms, and legs. A large part of lower lip had ulcerated away. There was a specific pharyngitis, which had destroyed the anterior and posterior pillars of the pharynx and most of the mucous membrane lining the superior and middle constrictors of the pharynx. There were also evidences of obstruction in the larynx, which interfered with inspiration, but which could not be seen with the laryngoscope. Patient gave a history of laryngeal troubles for previous four years. The initial specific lesion was contracted during sexual intercourse four months before entrance to hospital. The eruption on the skin and ulceration of lip yielded promptly to antisyphilitic medication, but the pharyngeal and laryngeal condition grew worse. Large quantities of pus were produced in the larynx. The patient became anemic from rejection of food on account of pain occasioned by swallowing, and also partial inability to swallow because of destruction of muscles concerned in deglutition. Oxygenation was interfered with by laryngeal obstruction. Death was caused by combination of above factors.

Necropsy (fourteen hours after death).—Body poorly nourished; post-mortem rigidity and lividity. Present condition of pharynx was as noted in the history. The epiglottis was curled up in its long axis so as to resemble the longitudinal section of a hollow cylinder, and also pulled backward from cicatricial contraction of the aryteno-epiglottidian folds. Between the folds were several enlarged glands. The ventricle of the larynx on the right side was occupied by a bulging pus sac springing from the necrotic calcified wall of the larynx. The mucous lining of the pus sac was thickened and indurated, and an opening into the ventricle existed in its lower part. The trachea and larger branches of the bronchi exhibited a mild grade of inflammation. Pleural surfaces at apex of left lung were adherent. The extreme apex of the lung was broken down into tough, curdy layers. Lower and middle lobes of right lung in a state of hypostatic congestion. The other viscera were normal.

Case 2.

Gummata of brain.

T. O.; aged 36 years; nativity, Pennsylvania; was admitted to the marine ward, German Hospital, Philadelphia, Pa., May 18; died July 8, 1894.

History.—Gave a history of having had epileptic attacks. These always began in the left hand, and after involving the left side of the body extended to the right side. On June 4 he was discharged as improved, having had no attacks while in the hospital. Four days later he was readmitted, giving history of having had several seizures during the period between his discharge and readmission. June 14 he had an attack, which was observed by the nurse, which began in the left hand

and involved the whole body, but was more marked on the left side. He had another attack on June 18. The symptoms of the epileptic seizures were twitching of the muscles of the parts affected without loss of consciousness. He was free from these symptoms until July 2, when he had three attacks in the afternoon and evening, at 3.30, 5.15, and 7.15, respectively. In the last one he was unconscious, this being the first time in the history of the case that he had lost consciousness during an attack. On July 5 he went into a comatose state, from which he could not be aroused and in which he continued until his death. June 20 he called attention to a growth on the right side of the head above and behind the ear, which was thought to be a gumma, and he was correspondingly put on antisyphilitic treatment, which had no effect.

Necrospy (*fifteen hours after death*).—External appearance: Body slightly emaciated; slight contractures of left hand and foot. Cranium: Above and posterior to the right ear was seen a well-marked swelling of circular outlines about 5 cm. in diameter and projecting fully 6 mm. Upon removal of the scalp this protuberance was found to be along the posterior superior portion of the temporal ridge. On incision into the outgrowth it was found to be of a gummatous consistency, and whitish yellow in color. The skull bone beneath showed beginning necrosis. Upon removal of the skullcap it was found to be of ordinary character, rather more consistent than normal, and very thin in the temporal region. There were adhesions of the dura mater to the skull at the point named, and this was found to be the seat of beginning necrosis, with distinct new growth, evidently syphilitic gumma. There were a number of small exostoses in the frontal region and in the left part of the frontal bone around a nutrient channel, which was evidently somewhat eroded, was a second gummatous area, scarcely as yet elevated above the surface, but all of a yellowish color and surrounded by hemorrhagic discoloration of the periosteum. The dura was somewhat thickened, but not markedly so, excepting at the diseased area, which was on the ascending parietal convolution at the junction of the lower and middle thirds, where it was firmly attached to the pia mater, and was cartilaginous in consistence. On turning up the edge of this area a slight lepto-meningitis (purulent) was discovered beneath. Elsewhere the appearance of the exterior was normal. The brain was not opened, but it was possible to feel in the neighboring fissures that the brain was not encroached upon, but simply softened by pressure. Thoracic cavity: No fluid in pleura; slight adhesions at apices. Heart was universally adherent to pericardium, which, however, could be stripped off. The heart was flabby and the epicardium roughened. On section the epicardium at the apex was considerably thickened by fatty infiltration and sclerosis. The walls of the left ventricle were somewhat thickened. The right side of heart was somewhat dilated. Lungs were emphysematous anteriorly and above; markedly congested and containing small extravasations of blood in the lower lobes, especially on the left side. Abdominal cavity: Liver was congested; spleen enlarged, somewhat bound down by adhesion, and slightly softened; kindneys congested.

CASE 3.

Œdema of lungs.

O. I.; aged 25 years; nativity, Denmark; admitted to United States Marine Hospital at San Francisco, Cal., January 2, and died February 4, 1895, at 3.30 p. m.

History.—On admittance patient presented a bloated, hydræmic appearance. Anæmia was extreme, the mucous surfaces and skin showing a vitiated blood supply, in which the red blood cells were very deficient. The scalp, scrotum, and flexures of the joints were fissured and incrusted with dried serum. On lifting a crust blood was exuded. The superficial glandular system of cervical, submaxillary, supraclavicular, axillary, bicipital inguinal, and popliteal regions were so enlarged as to make movement clumsy and restricted. He was troubled with languor and weakness in striking contrast to the stout appearance. A hæmic murmur over heart was audible. He had frequent attacks of dyspnea and expectoration of blood. Patient had contracted syphilis two years before entrance to the hospital, but claims to have undergone medication with regularity and good faith. Under treatment here he at first grew worse, then for a period of two weeks exhibited much improvement. Twenty-four hours preceding death congestion of lungs developed rapidly; dyspnœa, bloody expectoration, and general anasarca also supervened.

Necropsy (twenty hours after death).—Body flabby and dropsical; skin of a lemon tint; muscles bright red in color; fat light yellow. Pericardium contained a small quantity of fluid. Heart exhibited slight endocarditis, not sufficient, however, to implicate the valves. Cardiac muscle showed some fatty degeneration. Slight amount of fluid in pleural cavities. Both lungs showed intense œdema. Stomach and intestines pale and bloodless. Liver slightly enlarged. Spleen enlarged, weighing 925 grams. Pancreas and kidneys healthy. Suprarenal capsules normal in appearance. The bronchial, mediastinal, retroperitoneal, gastrohepatic, and gastrosplenic omental glands were indurated and enlarged. The red bone marrow of sternum appeared normal.

CARCINOMA OF STOMACH.

CASE 1.

J. J.; aged 58 years; nativity, Sweden; admitted to United States Marine Hospital at San Francisco, Cal., on March 22, and died September 7, 1894, at 12.30 p. m.

History.—On admittance patient complained of pain and difficulty in swallowing. Nearly impossible to swallow solid foods. Immediately after swallowing liquids there was a passive regurgitation, unaccompanied by sensations of nausea. On placing a stethoscope over cardiac orifice of stomach while patient swallowed milk an abnormal gurgling sound could be heard as the liquid passed into the stomach. No tumor could be made out on palpation. Patient was in a weak, emaciated condition. Lack of severe and continuous pain seemed to exclude cancer. Being unable to determine the nature of the disease, a diagnosis of dysphagia was made. Subsequently a blood count showed a reduction of 50 per cent in the number of red corpuscles without a disproportionate increase of leucocytes. Patient never had pain, except of a slight character on swallowing, during the six months of lessening strength and flesh preceding death.

Necropsy (twenty-two hours after death).—Rigor mortis present; body emaciated; slight pleuritic adhesions to parietes and also interlobar. Between lungs and chest wall was found a thin layer of clotted serum of about the consistency of egg albumen; surface of lungs presented a beautiful mottled purple appearance. On section there exuded a large amount of coffee-colored fluid. Lower 2 inches of œsophagus and the lesser curvature of stomach showed a thickened, ulcerated, broken-down appearance, caused by cancerous disease. The gastro-hepatic omentum and adjacent surface of left lobe of the liver were also disintegrated from extension of the cancerous process. Pancreas, healthy. Spleen, slightly enlarged. Kidneys, larger than normal and waxy in appearance. Other organs not examined.

CASE 2.

Pylorus.

J. B. (colored); aged 49 years; nativity, Kentucky; admitted to United States Marine Hospital, St. Louis, Mo., December 3, 1894; died January 3, 1895; disease, carcinomatous ulcer of pyloric end of stomach, perforation, and general peritonitis.

History.—Provisional diagnosis of dyspepsia made. On December 13 he was operated on for removal of enlarged inguinal glands and fistula in ano. This patient complained of trouble with his stomach for some time. Malignant disease was not marked by any special symptoms, and a general diagnosis of dyspepsia was made. After the operation for fistula in ano and excision of inguinal glands he did well.

His wounds healed rapidly and disease of the gravity revealed at the necropsy was not suspected. On January 1 (New Year's Day) he ate a very hearty dinner, and after supper on the same day he first complained of pain in the abdomen. By the next morning it was evident that peritonitis was present, but the symptoms were so indefinite that an exploratory laparotomy was not attempted, and subsequent developments showed the wisdom of this course. For even if the opening in the stomach could have been easily reached it would have been difficult to close it, and impossible to prevent subsequent perforation in other parts of the ulcer. The specimen was preserved.

Necropsy (*thirteen hours after death*).—Rigor mortis present; body much emaciated. Thorax: Pleural adhesions on both sides—most marked on left; slight serous effusion in both pleural cavities; small, cheesy deposits and puckered cicatrices in apices of both lungs. Lower lobe of left lung shows cicatrix, and is fibroid and airless; at inferior part a small, cheesy deposit which had undergone cretafaction was found in lower lobe of right lung. Heart: Normal, valves competent, slight patch of atheroma on base of anterior leaflet of mitral valve and in wall of ascending aorta. Abdomen: General peritonitis existed, and the peritoneal cavity was filled with a mixture of pus and stomach contents, the latter issuing freely from a perforation one-fourth inch (0.625 cm.) diameter situated near the posterior border of pyloric end of the stomach. The peritoneal surface of the stomach was adherent to the liver, omentum, and surrounding structures, and the round ligament of the liver was adherent to the stomach just below the seat of perforation. The pylorus was thickened and the opening from the stomach would just admit the forefinger. The pyloric end of the organ was the seat of a large horseshoe-shaped carcinomatous ulcer with raised edges and infiltrated borders. The ulcer was 5½ inches (13.75 cm.) long, from end to end, 1 inch (2.5 cm.) wide, and had destroyed all the coats of the stomach except the peritoneal. This was perforated about one and one-half inches (3.75 cm.) from the right end of the ulcer by the opening already mentioned. The stomach was much enlarged, the parts of the wall not invaded by the ulcer thickened and infiltrated, the mucous membrane pale, with some points of congestion and few rugæ. The mesenteric glands were enlarged and contained pus and cancer infiltrate. The omentum was much wasted and inflamed, in common with the peritoneum. The intestines presented nothing abnormal, mucous membrane generally blanched. Liver small and evidently fatty. Pancreas very pale, normal in size. Kidneys small, pale on section, and capsules slightly adherent. Suprarenal capsules lobulated and softened in medullary substance; spleen small; bladder and ureters healthy. Weight of viscera: Lung, left, 490 grams; lung, right, 575 grams; heart, after opening, 195 grams; liver, 955 grams; spleen, 105 grams; pancreas, 65 grams; suprarenal capsules each, 10 grams; kidney, right, 115 grams; kidney, left, 110 grams.

CARCINOMA OF STOMACH AND LIVER.

Case 1.

J. O.; aged 35 years; born in Wales; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., May 4, died June 29, 1895.

History.—On admission the patient was markedly emaciated, and gave a history of long-continued indigestion, latterly marked by vomiting. The stomach—carbon dioxide test—was found to be much dilated. A tumor on the liver, left lobe, was readily perceptible. That on the stomach, pyloric end, was at no time made out, but was rendered probable from the gastric symptoms. Vomiting was controlled fairly well by bland and liquid diet, but he died by exhaustion June 29. Pain was at no time a marked feature of the disease, although occasionally present toward the end of life, apparently from peritonitis; never had hematemesis.

Necropsy (*six hours after death*).—Very much emaciated; abdomen rather tumid. Thorax: The usual pleural adhesions over both lungs—rather more general than usual. Left lung, dark and small; in apex is an old spot of consolidation about

3 cm. in diameter and 1 cm. thick, tough, fibrous and dark, an old scar of some former lesion. The surface was "puckered" at this place. The tissue around was healthy, as was the rest of the lung, save for the black deposit on it. Right lung: In color like the other, same consolidated tissue, and very dense pleural adhesions at apex, but no distinct lump of fibrous tissue as in the other. Heart: About 35 c. c. of fluid in pericardial sack, dark amber in color; destitute of fat; soft and flabby; in diastole; apex œdematous for 0.75 cm., presumably from maceration in the pericardial fluid; valves normal. Abdomen: The peritoneal cavity was filled with bloody fluid, which, however, was clear, or nearly so (i. e., not turbid); no pus, some fibrinous exudation, gluing intestines together. The great omentum was represented simply by a little cord about 1 cm. (or a little less) in diameter around the greater curvature of the stomach. The stomach was enormously dilated, and the pyloric end bound in toward the back and drawn up under the liver, so that it was impossible to palpate it until that organ was drawn aside. It was then seen to be the seat of a large, rather firm tumor, evidently carcinoma. The orifice, however, was patent about 1.25 cm. diameter, but rigid and incapable of either expansion or contraction. The walls of the stomach were generally thin, but in some places were lined by bundles of muscular fibers, which stood out like pieces of tape drawn tight in the walls of the organ; mucus membrane, even at pyloric end, intact. No other deposit on the stomach. The liver was studded by masses of carcinoma, the left lobe especially, almost the whole of which had undergone carcinomatous degeneration. This was much softer than on the pylorus, and presumably secondary. The parietal peritoneum in the upper part of the abdomen and that lining the diaphragm were studded with knots of carcinoma from as big as a pin's head to the size of a pea. The visceral peritoneum over the transverse colon and most of the small intestines were also involved. There were also some adhesions among these of recent (soft) fibrin; the mesentery of the transverse colon was contracted to one-third of its usual length and studded with carcinomatous nodules. That of the small intestines also involved, though to a less degree. Kidneys and bladder normal.

H. R. C.

Case 2.

C. J.; aged 33 years; nativity, Sweden; was admitted to the United States Marine Hospital, San Francisco, Cal., March 25, and died April 22, 1895.

History.—Was transferred from San Pedro, Cal., where he had been under treatment for cystitis, gastritis, and anæmia. The cystitis had subsided, and for a month before admission to this hospital gastric symptoms had also abated. On examination a tumor was made out in the median line of the abdomen, extending from the xiphoid appendix to the navel, and about 10 cm. in width. There was marked jaundice, constipation, and anorexia. Emaciation had existed, but patient had general anasarca while in this hospital. Persistent pain was about the only subjective symptom. Provisional diagnosis of hepatitis was made. Exploratory aspiration with hypodermatic needle gave no clew to the nature of the disease. Palliative treatment was pursued. Patient died at 5 a. m. April 22.

Necropsy (*five and one-half hours after death*).—Thorax: Hypostatic congestion of both lungs; heart small; right ventricle showed eccentric hypertrophy and fatty degeneration; left ventricle concentrically hypertrophied. Abdomen: General peritoneal adhesions, and partial involvement of parietal peritoneum and abdominal wall in the disease. Carcinomatous (encephaloid) mass found, involving almost all of the left lobe of the liver and invading the right lobe. Peritoneal coat of the contiguous part of the stomach involved, and extending to a variable degree, in different parts, to the mucous coat. In this situation was an artificial opening about 2.5 cm. in diameter near the pyloric sphincter and on the anterior surface of the stomach. There was also superficial disease of contiguous part of spleen. Other organs appeared normal.

C. H. G.
J. G.

CARCINOMA OF LIVER.

F. J.; aged 42 years; nativity, Sweden; admitted to United States Marine Hospital at San Francisco, Cal., December 3, and died December 24, 1894, at 1.45 a. m.

History.—On admittance he complained of frequent bloody stools, attended with tenesmus, loss of appetite, great thirst, and pains in lower part of abdomen. During course of treatment liver enlarged rapidly, but hypodermic exploration for abscess was negative. Patient averaged seven stools daily, which were usually mixed with blood.

Necropsy (ten hours after death).—Body wasted; rigidity medium; thoracic viscera normal, except for small area of nodular new growth deposit in middle lobe of right lung. This area exuded a chocolate-colored juice on section. Liver much enlarged, weighing 3,700 grams. The interior, amounting to about the third of entire organ, had been irregularly hollowed out by an ulcerating new growth. The cavity contained a small quantity of detritus and fluid. The walls were composed of a dry, crumbling, grayish-yellow tissue which gradually faded off into normal liver. The spleen, kidneys, pancreas, stomach, and small intestine were normal. The colon from caecum to anus was lined with elliptical-shaped ulcers. These ulcers, with raised, dense, irregular margins and depressed centers, were scattered all over the mucous membrane. Many of them had coalesced, and no greater space existed between any two than 12 cm. Several of the crescentic folds of mucous membrane were puckered, thickened, and adherent. No enlargement was found in the glands of the mesentery, gastro-hepatic omentum, retroperitoneal region, or mediastinal spaces.

CARCINOMA OF PANCREAS.

F. D.; aged 52 years; nativity, Germany; admitted to United States Marine Hospital, Chicago, Ill., August 9; died October 4, 1894.

History.—For several months he had had slight dyspeptic symptoms; occasional discomfort after eating, flatulence frequently. Eight days before admission he was suddenly attacked with vomiting and purging. These symptoms abated, yet were present to day of admission. There had been no blood in vomitus or dejection. On entrance he was weak, and a yellow tinge was noticed in conjunctivæ. The following day this color had increased and integument also was perceptibly yellow. This jaundice became very intense and persisted till death. During first two weeks patient was quite comfortable and there was no vomiting. After September 1 there was frequent pain in abdomen and continual nausea and vomiting. Urine was dark colored, frothy on shaking, the foam greenish-yellow; sp. gr., 1.017; reaction, acid; bile and sugar present. Sugar was found several times during August, but on September 4 and later, as frequently tested, no sugar, but a small amount of albumen. Soon after admission liver was found to be somewhat enlarged, and at the end of two weeks an increase was noted. No tenderness on pressure.

September 3.—Rounded margin of gall bladder felt below edge of liver.

September 13.—Margin of liver a little below level of umbilicus, notch plainly felt 5 cm. to left of umbilicus and a little below. On the right, edge of liver dips below crest of ileum.

September 14.—Vomited 500 c. c. of bloody fluid, no clots. Stool to-day was black as tar.

September 16.—Bloody stools; vomited 1,000 c. c. dark, muddy fluid.

September 18.—Liver not further increased, but gall bladder now presents a swelling visible to the eye in right iliac region about 8 cm. in diameter. He continued to vomit frequently, but vomitus not distinctly bloody in appearance. Stools, black colored. During whole illness the preferred position in bed was on right side, and during the last month any other position could not be tolerated. Condition of patient made an operation for relief inadvisable.

Necropsy.—Heart weighed 290 grams; valves competent; anæmic appearance of muscle. Thoracic and abdominal aorta normal. No adhesions in pleural cavities. Surface of lungs yellow, mottled with blue patches. Lungs appeared normal except some excess of blood in lower lobes. Abdominal lymphatic glands enlarged and black; all other tissues yellow. Adhesions bound together liver, gall bladder, pancreas, intestines, and a tumor mass; this last about 6 cm. in diameter and most intimately connected with head of pancreas and with duodenum for several inches about the opening of the bile duct. The liver was enlarged; its surface showed elevated areas, had a nodular feeling everywhere, and was a dark-green bronze color. On section there were many areas of bright yellow in the general dark-green color. Lobules indistinctly marked. Gall bladder was greatly distended; contained 520 c. c. of black fluid, greenish yellow in a thin layer. It was partly adherent to intestine. Ducts patent except at opening into intestine. The common duct, except just at intestinal opening, was free from connection with tumor. The tumor is thought to have originated in the head of the pancreas. Weight of liver, empty gall bladder, tumor, with attached portions of pancreas and intestine, was 3,100 grams. Weight of kidneys: Left, 180 grams; right, 160 grams. Capsule of left kidney easily removed; of right, partly adherent. Both kidneys were dark-bronze red externally, greenish yellow on section; white patches on surface of left spleen weighed 150 grams, tissue semifluid (twenty hours after death), capsule rather thick. Every tissue in the body partook of the bilious coloring.

CARCINOMA OF PHARYNX AND NECK.

J. T.; aged 36 years; nativity, Norway; admitted to United States Marine Hospital, Chicago, Ill., October 3; died November 1, 1894.

History.—Patient was transferred from Milwaukee, Wis., where he had received treatment in hospital for seventy days for "malignant disease of fauces and tongue." He was emaciated and feeble on admission, and had difficulty in talking and swallowing. Examination of mouth showed extensive ulceration and loss of tissues on right side of pharynx and base of tongue. He stated that four years previously there was a small lump on the right side of his throat. This was cauterized and apparently disappeared, but soon returned, ruptured, and an ulcer persisted and had slowly extended. Six months ago he noticed some enlarged glands in the right side of neck, and one small mass just to the right of median line in front. The last had slowly increased in size and on admission was about the size of a goose egg, situated just above sternum and extremity of right clavicle. This was hard, smooth, not attached to integument, but was apparently attached to the periosteum of clavicle. In the right side of neck above this were three small nodules. At first from the condition of pharynx it was considered useless to attempt any operation. Mild cauterization was applied to ulceration in pharynx, but the obstruction to breathing became so great that operation was decided upon.

October 14.—Patient etherized, and tumor above sternum and the three smaller masses above it were excised. There was little hemorrhage. The large mass was closely bound to right clavicle, and extended behind clavicle and sternum resting upon innominate artery, but it was removed intact, with its connective tissue attachments. It lay also contiguous to the large vessels of the neck. The patient's general condition was not made worse by the operation, and the incisions healed rapidly. But the difficulty in breathing and swallowing did not at any time improve. Microscopic examination of the tumor showed it to be a carcinoma.

October 23.—It was found a new growth was rapidly pushing up at the former site, and before death it had become larger than the one removed.

Necropsy.—Body greatly emaciated. Inspection showed a swelling in neck from interclavicular notch, which it filled, to cricoid cartilage slightly to the right of median line, and about 5 cm. wide. Line of incision of operation visible on this swelling. Beneath the integument in various parts of trunk were found small, hard, white secondary carcinomatous nodules not over 0.5 cm. in diameter, one a little larger in left groin. The tumor in neck was found to be attached to sternum and first rib, and the bone and cartilage infiltrated and soft, so that the right half of sternum, from upper extremity nearly to second costal cartilage, and part of first rib were scooped out with the finger. The tumor after removal measured 5 by 10 cm. Pericardial sac and heart were normal. Adhesions in both pleural cavities at apices and over upper lobes, posteriorly. Left lung: Crepitation through the larger part, several dark red, dense masses scattered through tissue, not apparently extending to the surface. Right lung: Tissue firm, cuts hard, little crepitation, quite largely filled with small grayish nodules, and some areas entirely gray. The small gray nodules look not unlike tubercle, but appear partly liquefied. Beneath base of heart and arch of aorta was found a hard mass, to which were closely bound arch of aorta and great branches, trachea, œsophagus, yet apparently none of these had its caliber constricted by encroachment of the tumor. This mass was somewhat larger than the superficial tumor of neck previously described. The bronchial glands were much enlarged. The peritoneal cavity and intestines throughout presented nothing pathological. The liver was of purplish hue externally, dark-brown on section and weighed 2,130 grams. On its surface were seen many white spots from one-fourth to three-fourths cm. in diameter, each one with surface depressed below surrounding tissue. Section of a number of these showed there was no fluid, but a firm white tissue. Section of the whole organ showed there were many of these white nodules scattered through it. Kidneys: Left, 220 grams; right, 180 grams; capsules not adherent; externally many small, white spots (surface not depressed), and many white nodules through substance. Spleen, 230 grams; of normal appearance.

TUBERCULOSIS OF LUNGS.

CASE 1.

A. P.; aged 33 years; nativity, Germany; admitted to the marine ward, German Hospital, Philadelphia, Pa., October 1; died December 9, 1894.

History.—Gave history of having had a cough for one year which was getting worse, and was quite severe when he came to the hospital. Physical examination revealed dullness on percussion at the right apex, and tubular breathing. His heart was very weak and at times irregular in action. He rapidly lost flesh; the coughing increased in severity and the expectoration became very copious.

Necropsy (*twelve hours after death*).—External appearance: The body much emaciated; post-mortem lividity and rigor mortis slight. Thoracic cavity: The right lung was consolidated and on section a large cavity was found at the apex, it being about as large as an orange. There were marked adhesions on the left side, the result of an old pleurisy. The left lung was consolidated and showed tubercular deposit throughout its structure. The pleura on the right side was studded with tubercles. The heart showed fatty degeneration. Abdominal cavity: The liver had undergone fatty degeneration, the mesenteric glands were enlarged, and there were a few tubercular ulcers in the ileum. Spleen enlarged. Kidneys showed parenchymatous nephritis.

CASE 2.

F. J.; aged 24 years; nativity, New York; was admitted to the marine ward, German Hospital, Philadelphia, Pa., May 12; died July 20, 1894.

History.—When admitted was suffering with dyspnœa, night sweats, and severe attacks of coughing. He was extremely weak and very much emaciated. Physical examination revealed signs of a cavity at the apex of the right lung, and dullness on percussion over the left lung which was most marked at the apex. He improved somewhat under treatment and was discharged at his own request, June 16, 1894.

He was again admitted July 4, presenting all the symptoms that were present when he was first admitted, but was very much worse. He gradually grew weaker and died on July 20.

Necropsy (*ten hours after death*).—External appearance: The body much emaciated; rigor mortis slight. Thoracic cavity: Marked pleural adhesions on the right side with slight adhesions on the left side near the apex. The right lung showed a croupous pneumonia at the base and numerous areas of cheesy necrosis and small tubercles; there was a cavity at the apex about the size of a walnut. The left lung showed several areas of exudation, especially at the apex. The heart was somewhat dilated, but otherwise normal. Abdominal cavity: The liver was normal; in the intestines the solitary glands showed signs of infiltration; spleen, kidneys, pancreas, macroscopically normal.

CASE 3.

J. N.; aged 47 years; nativity, Norway; was admitted to the United States Marine Hospital at San Francisco, Cal., November 1, 1893, and died December 27, 1894.

History.—On admission to the hospital the patient complained of cough, night sweats, loss of appetite, and emaciation. Physical examination showed, at first, signs of chronic bronchitis, but subsequently indications of general tubercular infiltration of both lungs. Although the course of the disease progressed to a fatal termination, it was marked by several short periods of improvement.

Necropsy (*nine hours after death*).—Body rigid and emaciated. Left lung: Adhesions at apex and posteriorly; cavity at apex; entire organ infiltrated with tubercles; lower lobe congested. Right lung: Adhesions at apex and posteriorly; cavity at apex of a capacity of 100 c. c.; general tubercular infiltration. Other organs normal.

CASE 4.

M. C.; aged 23 years; nativity, Ireland; admitted to United States Marine Hospital at San Francisco, Cal., on July 12, and died July 16, 1894, at 8.40 p. m.

History.—On admittance patient was very weak, could only speak in whispers, and had temperature of 40.8° C. He had been ill for about three months; lost 16 kilos. of flesh; had frequent night sweats, incessant cough, and expectorated purulent sputum. Treatment was without avail, the fever and cough kept up, and nearly all nourishment was vomited.

Necropsy (*fourteen hours after death*).—Rigor mortis noted; no discoloration of body; body emaciated; right lung was collapsed, and the lower lobe carnified. The apex contained several small cavities. Rest of lung was uniformly infiltrated with tubercles. Left lung contained some small cavities toward apex. Disseminated tubercles throughout lung; lower lobe in condition of red hepatization; slight pleural adhesions toward apex; heart and abdominal viscera normal.

CASE 5.

M. A.; aged 42 years; nativity, Russia; was admitted to the United States Marine Hospital, San Francisco, Cal., September 8, and died September 20, 1894.

History.—Six months previous to his admission he suffered from a "bad cold," probably lobar pneumonia. This was followed by progressive weakness, pains in left side, cough, purulent and occasionally bloody expectorations. Previous to this he was strong and healthy.

Physical examination.—Heart normal. Lungs; inspection, nil. Palpation: Vocal fremitus absent on left side posteriorly. Auscultation: Jerky breathing at left apex; tubular breathing with suppression of respiratory murmur below scapula on left side. Percussion flatness posteriorly below left scapula; normal vesicular resonance elsewhere. Tubercle bacilli in sputum. Eight days after admission patient had a pulmonary hemorrhage, which was followed by several others until his death.

Necropsy.—The necropsy was held September 21, 1894, fifteen hours after death. Rigor mortis was noted, but no discoloration. Body well nourished. Pericardial sac contained about 75 c. c. of serum. Heart, normal. Right lung, healthy. Left lung: Adhesions posteriorly and at base; large cavity extending from apex to base, reaching nearly to the surface of the lung, and filled with pus and blood. The left lung weighed 1,630 grams, while the combined weight of both equalled 2,580 grams. The other organs were not examined.

CASE 6.

E. B.; aged 30 years; nativity, England; admitted to United States Marine Hospital, Chicago, Ill., December 29, 1894; died March 30, 1895.

History.—He had not been robust for several years, yet general health had been good. Three years ago he had sharp pains in left chest for short time. A week before admission he began to have slight hacking cough and pain in left chest on deep inspiration. Continuous moderate temperature. Examination of chest showed the heart in good condition, a few mucous rales in both lungs, and slight dullness at apex of left lung. Temperature became higher. Cough increased January 7 to 11; hæmoptysis January 12. Sputum contained little pus, mostly mucous; many tubercle bacilli. January 19 to 23, hæmoptysis. Course of disease very rapid. Later percussion note at left apex tympanitic. Coarse mucous and sonorous rales heard over whole chest. No night sweats. Slight diarrhœa on two occasions, usually somewhat constipated.

Necropsy.—Greatly emaciated; 250 c. c. clear fluid in pericardial sac. Weight of heart, 250 grams; valves, cavities, and walls apparently normal. Many shallow ulcers along whole of trachea, few in larynx. Weight of lungs, left 1,600 grams; right 900. Many adhesions and 1,050 c. c. slightly turbid fluid in left pleural cavity. No fluid; few weak adhesions in right pleural cavity. No crepitation in left lung, many caseous areas, and many vomicæ, one large and in upper lobe. Right lung everywhere crepitant, but contained many miliary tubercles. A few small ulcers, apparently cicatrizing, for short distance above and below ileo-caecal valve. Many fine tubercular nodules throughout whole extent of intestines. Liver, apparently normal, brown; weight, 1,630 grams. Each kidney weighed 150 grams; capsules not adherent; section appeared normal. Pelvis and ureters normal. Spleen weighed 210 grams.

S. D. B.
J. B. H.

CASE 7.

S. W.; aged 40 years; nativity, Ohio; admitted to United States Marine Hospital, Chicago, Ill., September 13; died October 21, 1894.

History.—Patient knows of no phthisis in family. He had been a strong man, and weighed over 200 pounds. Hard drinker. Attributes his sickness to exposure in the ice on the rivers. Cough began spring of 1893; night sweats the next winter; hæmoptysis spring of 1894. Voice increasingly husky since spring of 1894, and he could only whisper on admission. He had delirium tremens in May, 1893. On admission there was severe cough, profuse expectoration, night sweats; heart rapid and irritable; slight dullness at apex of left lung; tympanitic a little lower, with cavernous respiration. Left lung full of coarse mucous rales, and some moist mucous and sibilant rales in right lung. Respiration increased in frequency. During last two weeks of life he lost control of bowels and had slight involuntary stool with every cough. Stools at times watery, but often formed. Sputum not examined microscopically, as diagnosis was apparent.

Necropsy.—Nothing abnormal found in pericardial sac, heart, or thoracic aorta. Heart weighed 260 grams. Extensive ulceration through entire extent of larynx and trachea. Pleural cavities obliterated by strong adhesions; left lung torn in removal. Left lung: No crepitation; filled with tubercle and riddled with vomicæ; weight, 810 grams. Right lung: Many tuberculous nodules, and vomicæ in upper lobe;

other lobes were crepitant, but contained many tuberculous nodules. There were many ulcers in small and large intestines and rectum. Liver: Light-yellow, large, soft, fatty; lobules indistinct; weight, 2,260 grams; large quantity of peri-renal fat. Both kidneys had adherent capsules, and were lobulated, pale, and had thin cortices. Section of right kidney showed many white miliary deposits. Each kidney weighed 170 grams. Spleen somewhat enlarged, very soft; weight, 230 grams.

CASE 8.

M. S.; aged 42 years; nativity, England; admitted to United States Marine Hospital, Chicago, Ill., August 2, 1893; died August 27, 1894.

History.—Family history good, as related. States cough began in May, 1893. Hæmoptysis began in July, 1893, and continued for two weeks, ending in profuse hemorrhages evening of August 1 and morning of day of admission; none subsequently. On admission there were evidences of tubercular infiltration of both lungs. The process was more advanced in the right and progressed more extensively in that lung. Occasional diarrhœa occurred. Tubercle bacilli found in sputum. Night sweats were frequent. Vomiting accompanied the severe coughing. During part of illness there were frequent chills in early half of the day. Toward the close there was severe neuralgic pain over sacrum and in thighs.

Necropsy.—Heart: Weight, 450 grams, 30 c. c. clear fluid in pericardial sac; no pericardial adhesions or cicatrices; valves apparently competent; at aortic opening papillary excrescences at two of the junctions of cusps; thoracic aorta normal. In larynx and trachea were several ulcers about one-fourth cm. in diameter, one larger near vocal cords. Pleural cavities: Left, many weak adhesions over upper half and to diaphragm; right, many adhesions over upper half and to diaphragm; some very dense ones at apex. Left lung: Weight, 1,090 grams, filled with miliary tubercles, no vomicæ. Right lung: Weight, 720 grams; lower lobe filled with miliary tubercles; upper contained no air, a solid mass, with many vomicæ. Scattered along large intestine and rectum were seen small tubercular nodules, but no ulcers. Liver, yellowish-brown, probably fatty; weight, 2,140 grams; gall bladder half full of bile, no concretions. Each kidney weighed 170 grams, and each exhibited on the surface and scattered through section small chalk-white masses twice the size of the head of a pin. Spleen: Weight, 280 grams; good color and consistency.

CASE 9.

W. J.; negro; aged 25 years; born in Virginia; admitted to United States Marine Hospital at Cincinnati, May 2; died June 2, 1895.

History.—Patient complained of pain in left side of chest, cough, anorexia, and weakness. Physical examination revealed only some few scattered moist rales. Hæmoptysis frequently occurred. Emaciation and weakness became extreme. Symptomatic treatment was administered, and, as the fatal termination of the disease was foreseen, measures to make the patient comfortable were prosecuted. Patient suddenly collapsed and died within an hour, June 2, 1895.

Necropsy (seventeen hours after death).—Height of subject was 1.6 meters. Circumference at shoulders was 0.9 meter. Rigor mortis was slight. Body was wasted. Heart and pericardium: Pericardium contained some serous fluid and presented several miliary tubercles; mitral valve was indurated; all other valves were normal. Lungs and pleuræ: The visceral and parietal layers of both pleuræ were almost universally adherent. Both lungs presented numerous consolidated and softened areas, and removal of them in the whole condition was impossible. Small intestine presented several tuberculous ulcers; mesenteric glands were enlarged and hardened. Liver presented miliary tubercles.

P. C. K.

Case 10.

P. M.; aged 30 years; nativity, Ireland; admitted to United States Marine Hospital, Chicago, Ill., April 3; died July 15, 1894.

History.—Father died in patient's infancy in a "decline;" otherwise family history good. Four years ago patient had enteric fever, and he has not been in good health since; thinks he has had fever every night since that time; cough began soon after. On admission he was feeble, emaciated, had severe cough, profuse expectoration, night sweats, tubercle bacilli in spectum; chest expansion very poor; percussion note dull over both upper lobes; coarse mucous râles over both lungs; considerable diarrhœa soon after admission; dyspnœa became severe; deglutition painful and voice husky; no hæmoptysis.

Necropsy.—Heart: Weight, 200 grams; small, pale, several white patches externally; no pericardial adhesion; valves competent; thoracic aorta appeared normal. Larynx and trachea pale; no ulceration visible. Pleural cavities: Left, wholly obliterated by adhesions; right, lower half occupied by adhesions. Left lung: Weight, 1,250 grams; a mass of abscesses of varying size; largest at apex held 150 c. c.; no normal tissue; no crepitation. Right lung: Weight, 1,070 grams; upper lobe and upper half of lower a mass of small cavities filled with pus, one larger one at apex; crepitation only in lower half of lower lobe. Mucous membrane of stomach very pale. Nothing abnormal regarding intestines. Liver: Small, firm, chocolate color; weight, 1,275 grams. Gall-bladder filled with bile; no concretions. Kidneys: Left, 130 grams; right, 130 grams; both pale. Spleen appeared normal. Gelatinous secretion from trachea, just below larynx, was a pure culture of tubercle bacilli, two cover-glass preparations containing nothing else.

Case 11.

J. M.; aged 34 years; nativity, Ohio; admitted to United States Marine Hospital, Chicago, Ill., June 25; died December 22, 1894.

History.—Family history negative. General health had been good. He had worked as a florist until three years ago when he became a sailor. He had been losing flesh for a year. Cough began in fall of 1893 and continued until spring. He thought it had stopped and shipped on the lakes. Cough soon returned and he was forced to apply for relief. He had had night sweats, but no hæmoptysis. On admission a consolidation was noted at apex of right lung, and tubercle bacilli were very abundant in sputum. There was profuse expectoration, continuous fever, progressive emaciation, and loss of strength. In November there was œdema of the feet, becoming later a general anasarca, but this subsided again, with the exception of œdema of feet.

Necropsy.—Pericardial sac contained 50 c. c. of clear fluid. Heart weighed 210 grams, valves competent, walls thin and pale; thoracic aorta normal. Left lung weighed 370 grams. Left pleural sac contained 1,000 c. c. clear fluid; no adhesions. Right pleural sac contained 3,000 c. c. of pus; no adhesions. Left lung contained a moderate number of miliary tubercles. Right lung was compressed and firmly attached to surface about bronchus and vessels, it contained a cavity filled with pus at apex. Abdominal cavity and viscera generally appeared normal. Liver of normal color externally; weight, 1,730 grams. Section of liver had an amyloid appearance, somewhat tough and creaking under knife; lobules visible. Gall bladder and ducts apparently normal. Each kidney weighed 210 grams; both presented a normal appearance. Spleen weighed 180 grams and looked normal.

Case 12.

W. J.; aged 48 years; nativity, Virginia; admitted to marine ward, St. Vincents Hospital, Norfolk, Va., October 4; died October 24, 1894.

History.—Patient was well until two weeks preceding his admission; said he had one chill, and fever ever since. When admitted he had fever which resembled remittent malarial. Temperature, 38.3° C. to 39.1° C. in the morning and 39.4° C. to 40° C. in the afternoon; had no stupor or diarrhœa. There was no dyspnœa or cough when first seen. At first the physical examination only revealed some harshness and exaggeration of the vesicular murmur and prolongation of expiration murmur at the apices. The patient's condition was good at first. The disease made rapid advancement, and it was soon possible to detect slight dullness on percussion, some bronchial breathing, and a few mucus râles. At this time the fever was running a course of 39.4° C. to 40° C. in the morning and 40.4° C. in the afternoon, although sometimes the fever was higher in the morning than evening. The patient's general condition became much worse, and his strength was rapidly sapped, becoming much emaciated and dying in five weeks from the commencement of the attack.

Necropsy (*twenty hours after death*).—External appearances: Body emaciated; rigor mortis marked. Thoracic cavity: The pleura was studded with miliary tubercles; right lung was consolidated and filled throughout its structure with tubercles; a small cavity was found in upper lobe; left lung was similar to the right except no cavity was found. Pericardium and heart were normal. Abdominal cavity: Peritoneum was normal; liver and spleen enlarged; kidneys normal.

CASE 13.

P. H. (colored); aged 22 years; nativity, Mississippi; admitted to the United States Marine Hospital, Memphis, Tenn., September 24; died December 23, 1894.

History.—This patient was the victim of a severe attack of epidemic influenza in the winter of 1892-93, a conspicuous part of the disease being peripheral neuritis. He recovered from the attack, but never seemed to have vigorous health afterwards, although his general nourishment was good. In August, 1894, he had hæmoptysis and began to be troubled with a cough. At the time of his admission to the hospital there was so much general bronchitis that no specially affected area was discovered, although there was a suspicion of consolidated areas in the left lung. As the bronchitis cleared away somewhat, it appeared that the upper lobe of the left lung had become consolidated. There was very little expectoration at any time, although the cough was distressing. Creosote was given in increasing doses, without any benefit. The remainder of the left lung became involved in the consolidation, and later the entire right lung filled up somewhat suddenly. The patient had a great deal of bleeding from the lungs in the last month of life.

Necropsy (*sixteen hours after death*).—No post-mortem lividity; rigor mortis present; general nourishment good; pupils slightly dilated. The heart weighed 341 grams. The pericardial sac contained a small quantity of clear yellow serum. All the valves of the heart were competent. The left ventricle was somewhat hypertrophied. There was a bunch of enlarged cheesy and calcareous lymphatic glands about the bifurcation of the trachea in the mediastinum. The left lung weighed 1,057 grams. There were moderate adhesions in the pleural cavity. There was a large cavity in the apex of the lung and some smaller cavities were in other parts of the upper lobe. The lower lobe was filled with tubercles. The lung floated in water. The right lung weighed 819 grams. There were adhesions in the back part of the pleural cavity. The lung was thickly studded with tubercles, diffused throughout its tissue. The liver was normal in appearance; its weight was 1,690 grams. The gall bladder was partly filled with bile. The left kidney weighed 159 grams, the right 175 grams. Both were normal in appearance. The spleen weighed 216 grams; a few yellow specks of a shotty feel were found in it, having the appearance of tubercle.

CASE 14.

M. M.; aged 25 years; nativity, Austria; admitted to the United States Marine Hospital, New Orleans, La., August 29; died October 11, 1894.

History.—Patient on date of first admission gave a history of malarial fever remittent, from which he recovered and was discharged October 6, 1894. He was readmitted and treated for acute tuberculosis and died of exhaustion, the result of his long-continued illness.

Necropsy (five hours after death).—Body poorly nourished; rigor mortis marked; pupils slightly dilated. Heart: Weight, 440 grams; larger than normal, endocardium studded with deposits of tubercle; pericardial sac contained an excess of clear fluid; aortic and mitral valves competent; ventricular cavities increased in size and walls thickened. Lungs: Right lung infiltrated throughout with tuberculous deposits; the stage of cavity formation had not however been reached; weight, 1,730 grams. Pleural cavity of right side contained no adhesions. Left lung studded throughout with deposits of tubercle, but not as marked as the right; weight, 1,050 grams. Peritoneum rather anæmic; contained no tubercular deposits. Gastro-intestinal tract anæmic; contained no deposits of tubercle. Liver: Weight, 2,680 grams; color, deep bronze, and increased in size. Gall bladder contained a small quantity of bile. Left kidney: Weight, 175 grams; slightly congested; capsule not adherent. Right kidney: Weight, 205 grams; congestion more marked than the left kidney and somewhat increased in size; capsule not adherent. Spleen: Weight, 185 grams; smaller than normal; soft and friable capsule firmly adherent.

CASE 15.

P. B.; aged 33 years; nativity, New Foundland; admitted to the United States Marine Hospital, Boston, Mass., April 14; died April 30, 1895.

History.—This was an interesting case. The patient was admitted April 6, 1895. He stated he had been sick all winter, the trouble beginning with pain in side and chill and fever which was followed by typhoid fever, from which he seemed to be convalescent. He suffered from severe cough and had diarrhœa. Cough became worse. Tubercular baccilli were found in the sputum. The afternoon temperature was 39°+C, with morning temperature about normal, and he was readmitted April 14, with diagnosis of acute tubercle of lungs. The case followed regular course and the patient died from absorption of toxic products and exhaustion.

Necropsy (nine hours after death).—Body that of large, well-formed white male, somewhat emaciated; eyes gray, hair dark. Post-mortem lividity, none; rigor mortis just beginning. Thorax: Heart, after opening, weighed 375 grams; was in systole; the valves and walls were somewhat pale but normal otherwise. Lungs: Left weighed 1,780 grams. Upper lobe was necrotic; miliary tubercle over whole of lung, which was adherent to parietal pleural surface. Right weighed 1,280 grams; was somewhat adherent in upper portion; upper lobe filled with miliary tubercle and the others comparatively healthy. Liver "nutmeg," and weighed 2,190 grams. Kidneys: Right weighed 240 grams, cirrhotic; left weighed 170 grams; amyloid reaction with tincture of iodine. Spleen weighed 208 grams; pale infarct on convex surface. No signs of former ulcers in small intestines.

W. P. M.

CASE 16.

W. C. (colored); aged 26 years; nativity, Delaware; admitted to United States Marine Hospital, Boston, Mass., June 4, 1895, suffering from tuberculosis of lungs. Affection ran a rapid course, death occurring June 21, 1895.

Necropsy (twenty-four hours after death).—Body medium-sized male, emaciated; Post-mortem lividity not observable; rigor mortis not present. Larynx and trachea tubercular. Upper lobes of both lungs infiltrated with tubercle; numerous small cavities existing in both lungs; right lung much worse than left, being necrotic throughout a large portion. Weight of lungs: Left, 775 grams; right, 1,205 grams. Liver small and of dark color; weight, 1,385 grams. Weight of kidneys: Left, 195 grams; right, 150 grams. Both kidneys hard and capsule hard to peel. Line of demarcation between cortical and medullary substance eliminated in places. Suprarenal bodies were much enlarged and both had undergone cheesy degeneration from tubercle. Left weighed 20 grams and right 50 grams. Urinary bladder empty.

W. P. M.

CASE 17.

F. C.; aged 21 years; nativity, Nova Scotia; admitted to United States Marine Hospital, Boston, Mass., January 24, 1895, suffering from tubercle of lungs; died February 22, 1895.

Necropsy (*twelve hours after death*).—Body that of white male, very tall, extremely emaciated; rigor mortis well marked; post-mortem lividity on dependent parts of body. Heart small; valves pale and flabby, but competent. Weight of heart 350 grams. Left lung tightly bound down to posterior chest wall and spinal column by old adhesions of pleura, arising from an empyema. The space between anterior chest wall, parietal pleura and the lung, and visceral pleura contained about 1,000 c. c. of tuberculous pus; the lung tissue tubercular; weight of lung, 1,270 grams. Right lung also tubercular and contained numerous small vomicæ, also areas of cheesy deposits; weight, 1,190 grams. Stomach slightly dilated and catarrhal. Liver: Chronic congestion and closely approaching the so-called nutmeg liver; weight, 2,350 grams. Kidneys: Pelves and ureters of both slightly dilated; weight of left kidney 230 grams and of right 195 grams. Spleen weighed 250 grams. Macroscopically the connective tissue appeared increased. This man's trouble undoubtedly originated from a neglected empyema, which may or may not have been tubercular in beginning.

W. P. M.

CASE 18.

H. J.; admitted to United States Marine Hospital, Boston, Mass., September 20, 1894, suffering from cough, pain in side, dyspnœa, rapid pulse, etc. Anæmic in appearance. Diagnosis, tuberculosis and valvular disease of the heart. Died February 18, 1895, at 3 p. m.

Necropsy (*eighteen hours after death*).—Body of medium-sized white male, slightly emaciated. Circulatory organs: Heart weighed 530 grams, fatty and dilated; none of its valves competent; the tricuspid contained deposit of bone about 3 cm. in length by 1 cm. in diameter was removed from this valve; the mitral valve was also rigid from same cause; large antemortem clots found in both right and left sides of heart; pericardial sac was strongly adherent to pleura and chest wall; it was of a bright, glistening appearance, and so strongly bound as to require dissection to remove, and contained about 350 c. c. fluid. Left lung infiltrated with miliary tubercle with a few very small vomicæ; weight, 1,280 grams; right lung œdematous with some tubercular deposits; bronchial glands caseous. Stomach dilated to about three times normal size. Liver congested; weight 2,260 grams, somewhat fatty. Left kidney weighed 200 grams; right, 190. Pelvis of both dilated; the renal vein of left side dilated so as to admit end of finger. Vena cava lying well to right of spinal column. Spleen soft and pulpy; weight, 230 grams. A supernumerary spleen, about size of hazel nut, was attached to artery. Cause of death, heart paralysis.

W. P. M.

CASE 19.

T. R.; aged 36 years; nativity, Ireland; admitted to United States Marine Hospital, Boston, Mass., October 20, 1894; died April 19, 1895.

History.—Had been sick with cough for three months previous to admission; had been getting worse all the time, losing flesh and becoming weaker. Had no appetite; bowels loose; cough persistent and worse at night; hæmoptysis previous to admission; suffered from insomnia and was relieved by being propped up in bed; had a severe pain in right chest, sharp and intense when he coughed. Physical examination showed cavity in upper right lobe, consolidation of upper lobe, bronchial breathing, rales throughout; left lung normal; heart normal; case had the usual history of tubercle of lung, and patient lost ground until death, April 19, 1895, from exhaustion.

Necropsy (*four hours after death*).—Body of white adult male, much emaciated; rigor mortis slight; opening the thorax found heart much contracted; ante and post mortem clot in left ventricle and tricuspid valve thickened; the other valves normal; larynx inflamed; tubercle ulcers on vocal cords. Lungs: Left weighed 373 grams; no adhesion except at apex; pleura thickened and consolidation there. Right weighed 373 grams; pleura thickened and adherent throughout; little normal tissue left; large and small cavities in each lobe. Liver was much enlarged and the right lobe extended from the umbilicus to 1 inch above the right nipple, thus leaving little room in pleural cavity on that side. It was hard and wooden to the touch, light in color, and was in a condition of hypertrophic cirrhosis. Gall bladder was full of normal contents. Kidneys: Left weighed 130 grams; right weighed 120 grams; both small and fibrous. Bladder, empty, normal. Spleen weighed 215 grams; pale, infarct in superior portion concave side.

W. P. M.

CASE 20.

O. W.; aged 31 years; nativity, Finland; admitted to United States Marine Hospital, Chicago, Ill., December 27, 1894; died January 5, 1895.

History.—In 1881, on a German vessel at sea, he had a severe diarrhœa, lasting seven weeks. There have been several severe attacks since. In August, 1894, he was obliged to leave a vessel on account of diarrhœa, and since then he has hardly been free from this trouble. He states that his cough began in February, 1894, while at work cutting ice, and was severe until warm weather, then scarcely noticeable until the fall. He never had hæmoptysis. He was admitted to the marine ward, St. Mary's Hospital, Milwaukee, Wis., November 12, 1894, and transferred to Chicago December 27. While at Milwaukee cough was slight and diarrhœa pronounced. On admission at Chicago there was dullness over whole right lung, most marked at apex, coarse mucous and sibilant rales through whole of right lung; air entered left lung more freely, and there were some crackling rales in this lung. Many tubercle bacilli in sputum. At this hospital there was no diarrhœa and very little cough, but strength failed.

Necropsy.—Pericardial sac and heart normal. Heart weighed 390 grams. No ulceration in larynx and trachea. Many weak adhesions in left pleura. Left lung weighed 1,160 grams; contained a vomica, size of English walnut, at apex; miliary tubercles through whole lung, yet considerable crepitation. Right pleural cavity obliterated by firm adhesions. Right lung weighed 960 grams; contained a very extensive vomica at apex, many small vomicæ, miliary tubercles through whole lung, and no perceptible crepitation. A number of ulcers were scattered through intestines, principally in large intestine. Liver presented normal appearance, except that it was of darker color; lobules distinct; weight, 1,690 grams. Each kidney weighed 140 grams; capsules not adherent. Kidneys appeared normal on section, with exception of a number of small white points scattered through both.

S. D. B.
J. B. H.

CASE 21.

Intestines.

C. O.; aged 46 years; nativity, Norway; admitted to United States Marine Hospital, Chicago, Ill., December 12, 1894; died April 19, 1895.

History.—Family history good; patient addicted to alcohol. He stated that he felt well until October, 1894, when he began to cough and lose strength, and was affected with dyspnœa. Somewhat emaciated, pale, and weak on admission; cough not severe; expectoration scanty, and not purulent, and tubercle bacilli could not be found. Physical signs in chest insufficient for diagnosis other than bronchitis. During the first month changes were evident. Daily morning chill with rise of temperature to 39 to 40.5° C, and very gradual decline through the day. Sputa became more abundant, purulent, and contained a moderate number of tubercle bacilli. Progressive emaciation and loss of strength. Heart's action weaker, more rapid. Signs at apices of lungs, noticeable in the left first, of breaking down of tissues and formation of cavities. No diarrhœa; no loss of voice; brain slightly clouded during last few days.

Necropsy.—Slight œdema of lower extremities; about 100 c. c. of clear fluid in pericardial sac. Heart weighed 360 grams; general appearance normal; at aortic valve one cusp noticeably thickened, but not at free margin; flexibility not apparently impaired; at pulmonary valve several small vegetations on cardiac surface of one cusp. Cavities of heart of good proportionate size; walls rather thin and muscle pale; atheromatous plaques found in aorta for a short distance beyond aortic valves; many ulcers in trachea. Left pleural cavity contained universal firm adhesions. Vomicæ at apex ruptured in removal of left lung. Many small vomicæ in upper lobe; crepitation only in lower lobe; miliary tubercle throughout whole left lung; weight, 1,320 grams. Adhesions in upper half of right pleural cavity. Right lung, 1,600 grams; many vomicæ in upper lobe; tubercle everywhere. Abdominal cavity contained 150 c. c. clear fluid; many ulcers, mostly small, found along length of intestines, especially at cæcum. Liver fatty, lobules very distinctly marked; general color, brownish yellow; weight, 2,140 grams, not cirrhotic. Left kidney, 180 grams; right, 170 grams; capsules not adherent; appearance normal. Spleen, 170 grams; normal appearance.

S. D. B.
J. B. H.

CASE 22.

Intestines.

J. K.; aged 28 years; nativity, New York; admitted to United States Marine Hospital, Chicago, Ill., March 14; died April 2, 1895.

History.—Parents died of tubercle, probably. In April, 1894, patient began to cough, and in June, 1894, he became hoarse. Both symptoms have been constant since. Emaciated on admission; no marked dullness of chest; tympanitic percussion tone and cavernous respiration near left apex; respiratory murmur nowhere normal; no rales; constant cough; tubercle bacilli in sputum; difficult deglutition; voice harsh on admission; later he could only whisper; toward the close, diarrhœa and delirium.

Necropsy.—Pericardial sac normal; heart small, pale; valves competent; weight, 210 grams; larynx and trachea filled with ulcers; left pleural cavity, no fluid, very firm adhesions at apex. Left lung, 970 grams; a few small vomicæ at apex; tubercle everywhere, especially in upper lobe. Right pleural cavity no fluid, firm adhesions over upper lobe. Right lung, 1,080 grams; small vomicæ at apex ruptured in removal on account of density of adhesions; miliary tubercle everywhere, very numerous in upper lobe, decreasing much toward the base; peritonæum normal. A few ulcers at lower end of small intestine, many throughout large intestine; all small, nearly circular. Liver, normal appearance, 1,510 grams. Kidneys, left 150 grams, right 130 grams; capsules not adherent; appearance externally and internally normal. Spleen small, tissue normal, 80 grams; dura mater adherent along vertex; slight excess of fluid within dura. Pia carefully inspected for tubercle, but no evidence macroscopically. Weight of brain, 1,400 grams.

S. D. B.
J. B. H.

CASE 23.

Aneurism of thoracic aorta.

J. T.; aged 35 years; nativity, Maine; was admitted to United States Marine Hospital, Boston, January 15, 1895, suffering from severe dyspnœa; slight cough, but very little sputa. Noise of breathing very much resembled cardiac asthma, but was found later to depend on pressure of trachea and bronchi. Died January 22 at 3.45 p. m.

Necropsy (twenty hours after death).—Body that of white male, medium size, slightly built, much emaciated, full beard on face, cicatrix on right knee; rigor mortis present; post-mortem lividity slight; pupils normal; heart slightly displaced downward; pericardial fluid normal; left ventricle hypertrophied and dilated; right ventricle dilated; large ante-mortem clot in left side of heart; mitral valve widely separated by dilated ventricle and incompetent; aortic valves incompetent. Weight of heart, 300 grams; thoracic aorta contained sacculated aneurism, occupying the whole of arch and extending into both ascending and descending portions. The upper dorsal vertebræ, two in number, third and fourth, were eroded, and tumor was detached only by using considerable force. Lungs contained tubercle at apices; bronchial glands enlarged and caseous; right lung œdematous and weighed 910 grams; left, 530; stomach dilated, chronic catarrh mucous membrane; small intestine twisted on its axis and inflamed; mesenteric glands tubercular. Liver chronically congested; nutmeg liver; weight, 1,450 grams; gall bladder distended. Kidneys appeared normal; left weighed 125 grams, right 130 grams. Spleen congested, sago spleen; weight, 225 grams. Brain and cord not examined.

W. P. M.

Case 24.

Aneurism of the thoracic aorta.

J. T.; aged 51 years; nativity, New York; admitted to United States Marine Hospital, St. Louis, Mo., September 12, 1894; died April 14, 1895.

October 18, 1894.—Examination of chest found dullness over left lung in the infraclavicular, mammary, supra and infra scapular regions; diminished respiratory murmur over these regions and moist sounds at the apex of the left lung. There was exaggerated respiratory sounds over the right lung and slight dullness at the apex. He coughed at night, but the expectoration was scant. His weight remained about the same as when admitted; appetite fair, and he complained much of pain in the chest, chiefly located in the left side.

December 1, 1894.—Condition about the same; still coughed; pain in the chest and expectorated small quantities of coagulated blood, which had the appearance of molds of the smaller bronchi. Examination of the sputum showed only a few tubercle bacilli. The progress of the case presented nothing worthy of special mention, and the original diagnosis of tubercle of the lungs was considered correct.

On the morning of April 14, 1895, he was as usual, but complained of pain in the left side, over the cardiac region. In the afternoon at 4.30, while in the ward smoking room, he grew faint and died suddenly before the medical officer on duty could reach him.

Necropsy (seventeen hours after death).—Rigor mortis; body fairly well nourished; surface extremely pallid, almost waxen in appearance; keratitis present in both eyes; cranial cavity not opened. On opening the chest wall an enormous clot was found in the left pleural cavity and the cavity was filled with clotted blood and serum. The heart was pushed over to the right side of the chest beyond the median line, and the left lung was compressed and greatly reduced in size by the pressure of a large conoidal-shaped tumor, which occupied the left pleural cavity. This was an aneurism of the transverse portion of the thoracic aorta, and it had ruptured at a thinned portion of the sac wall on its anterior and lower surface, thus allowing the escape of a large amount of blood into the left pleural cavity. The clot in the latter weighed 1,435 grams. The tumor was conoidal or cordiform in shape, resembled an enlarged heart in external appearance, and contained laminated clot which weighed 540 grams. Its dimensions were: Circumference at largest part, 31.25 cm.; length, base to apex, 13.75 cm.; breadth, 10 cm. The projection of the tumor was backward and downward, and away from the anterior chest wall, and no doubt it was owing to this peculiar position that it was overlooked during life. The first part of the ascending aorta was filled with patches of atheroma and was much dilated. The abdominal aorta also contained numerous calcareous plates with patches of ulceration in the intima. The heart was of medium size, occupied the right side of the chest, and had the semilunar valves of the aorta stiffened by the atheromatous deposit and an extensive calcareous deposit at the base of the mitral valve. The aneurism, with the heart attached, was preserved as a specimen. A few pleural adhesions were found in both cavities, most numerous in the left. Left lung was small, flattened, fibroid in the lower lobe, and a tubercular cavity the size of a hen's egg, with tubercular infiltrate, found in upper lobe at apex. The right lung showed tubercular infiltrate and minute calcareous deposits through the apex and upper lobe. Remainder of lung crepitant and normal except slight hypostatic congestion in lower lobe. Abdomen: Stomach contracted and at the fundus there was a distinct diverticulum projecting to the left. About the center of the greater curvature there was a puckered spot and the mucous membrane opposite this was thickened and infiltrated. The pylorus shows nothing abnormal. The liver is small, cirrhotic, and the change is most marked in the left lobe. The gall bladder was normal and the ducts patulous. Pancreas and intestines normal. Spleen slightly enlarged. Kidneys pale; cortical structure small in amount and slightly cirrhotic, capsules adherent, and a few small retention cysts found on the external surface. The bladder was small, contracted, and the prostate gland much enlarged in middle lobe, the enlargement producing a pouch in the floor of the urethra just without the sphincter. Weight of viscera: Right lung, 510 grams; left lung, 310 grams; heart with aneurism sac attached, 715 grams; liver, 1,285 grams; spleen, 180 grams; pancreas, 50 grams; suprarenal capsules, each 10 grams; right kidney, 135 grams; left, 155 grams.

GENERAL TUBERCULOSIS.

CASE 1.

J. S.; aged 21 years; nativity, Guiana; admitted to United States Marine Hospital at San Francisco, Cal., on November 11, 1894, and died March 21, 1895, at 2.45 a. m.

History.—On admittance patient was suffering from suppurating disease of glands of the neck of a tubercular character. Soon after symptoms and physical signs of tubercle of lung developed. An intractable diarrhœa, attended with tympanitis and tenderness, set in, making the case one of general tuberculosis. Treatment did not check the rapid progress of the disease.

Necropsy (nine hours after death).—Body emaciated. The cervical, mediastinal, bronchial, retroperitoneal, and mesenteric glands exhibited all stages of enlargement, caseation, and suppuration. Heart, normal. Pleural surfaces generally adherent. A good-sized cavity found at apex of right lung. Left lung at apex contained several small cheesy deposits. Liver adherent to diaphragm. Both kidneys were swollen and congested. The lower loops of small intestine were inextricably matted together from plastic inflammation. One of the loops in the pelvis had perforated, with resulting localized, septic peritonitis. Between the mesenteric folds attached to jejunum and upper part of ileum were found several large accumulations of a clear, jelly-like, clotted fibrin. Other organs not examined.

CASE 2.

O. P. R.; aged 27 years; nativity, Missouri; admitted to United States Marine Hospital, Chicago, Ill., October 6; died October 23, 1894.

History.—Two sisters died of consumption. Patient transferred from Milwaukee where he had been in hospital forty days. Cough began five months previous. Night sweats frequent; slight diarrhœa. On admission there was noted dyspnœa, emaciation, physical weakness. Heart's action feeble and rapid. Percussion tympanitic over upper lobes of both lungs, and respiratory murmur cavernous. Tubercle bacilli in great numbers in sputum.

Necropsy.—Heart weighed 190 grams, small, but of normal appearance; valves competent. Thoracic aorta normal. No ulceration in larynx and trachea. Pleural cavities: Very firm adhesions over upper lobes of both lungs at apices and posteriorly. Left lung: Weight, 1,020 grams; very little crepitation; vomicæ throughout whole lung, many quite large. Right lung: Weight, 840 grams; some crepitation; miliary tubercles everywhere; many vomicæ in both lobes. The small and large intestines and rectum contained many ulcers, often transverse, some embracing whole circumference, the largest one in region of ileocæcal valve. Liver, dark-brown color; weight, 1,640 grams; general appearance normal, though lobules rather indistinct. Kidneys: Left, 160 grams; right, 150 grams; capsules not adherent; appearance normal. Spleen: Weight, 230 grams; normal appearance.

Case 3.

C. C.; aged 38 years; nativity, New York; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., September 4, 1894; died September 7, 1894.

History.—Patient had been sick one year, suffering with cough, hæmoptysis, loss of flesh, and all the symptoms of tubercle of lungs. When admitted he was suffering with the symptoms of phthisis, and also complained of slight pain in the head and some weakness in the right arm. In a few days he became stupid and drowsy, pupils were dilated, had difficulty in swallowing, and some impairment of speech. These symptoms increased in severity and patient died in coma.

Necropsy (*twelve hours after death*).—External appearances: Body emaciated; rigor mortis and post-mortem lividity slight. Thoracic cavity: Pleuræ were adherent. Right lung was studded throughout with tubercles, and a cavity the size of an orange was found in the upper lobe near the apex. The left lung was also studded with tubercles, but contained no cavities. Pericardium was normal; heart was slightly hypertrophied, otherwise normal. Abdominal cavity: Peritoneum healthy; liver normal; spleen conjested and softened; stomach normal; the glands in small intestines were infiltrated with tubercles, but there was no ulceration; pancreas and kidneys normal. Cranium: The dura mater was conjested, and when divided considerable fluid found. The pia mater was thickly studded with miliary tubercles and markedly conjested. Several minute hemorrhages were found in the brain, and the third inferior frontal convolution was somewhat softened, as well as the lower portion of the ascending frontal and parietal convolutions.

Case 4.

A. F.; aged 37 years; nativity, New Brunswick; admitted to United States Marine Hospital, Boston, March 11, suffering from tuberculosis of the lungs; died June 9, 1895, at 12 m.

Necropsy (*twenty-six hours after death*).—Body of white male, fairly nourished; rigor mortis marked; post-mortem lividity of dependent parts. Heart weighed 450 grams. Heart muscle thickened, stained dark-red from blood; pericardium adherent to heart so as to eliminate cavity. Mitral valve thickened and full of minute vegetations; incompetent. Aortic and pulmonary valves competent; endocardium stained a deep cherry red. There was a slight tear in anterior wall of right ventricle, but as organ was softened (post-mortem) and tightly adherent to other organs this possibly occurred in removing it from body, no pericardial sac being present to contain blood had rupture occurred. Left lung weighed 450 grams and was pneumonic in upper lobe posteriorly. Right lung weighed 750 grams and contained cavity about size of a small orange. This cavity was lined with thick pyogenic membrane and filled with necrotic tissue and blood clot. The erosion had opened a large blood vessel which caused hemorrhage, which was immediate cause of death. Liver weighed 2,000 grams, and was infiltrated with miliary tubercles. Gall bladder full. Left kidney weighed 230 grams and contained tubercles. Right kidney weighed 230 grams, also tubercular. Pelvis and ureters dilated. Urinary bladder empty. Spleen was enormously enlarged and soft; weighed 1,250 grams. There were six small supernumerary spleens along course of splenic artery. Brain not examined. Tuberculosis, leading to pulmonary hemorrhage, caused death.

W. P. M.

CASE 5.

J. L.; aged 23 years; nativity, England; was admitted to the marine ward of German Hospital, Philadelphia, Pa., October 20, 1894, suffering with enteric fever, from which he improved, afterwards having a relapse from which he recovered, with the exception of dry, hacking cough which would not yield to treatment. February 11, 1895, he had a chill which was followed by fever and evidences of pleural effusion. The pleural cavity was tapped and about 100 c. c. bloody serum withdrawn. He declined rapidly, and died February 20.

Necropsy.—Pleuræ were not adherent, no fluid in cavity, Lungs: Left contained miliary tubercles throughout the lower lobe; upper lobe not affected. Right contained a few tuberculous areas at apex only; mediastinal glands, both anterior and posterior, were enlarged. Heart: Slight hypertrophy, especially right side, where the walls were quite thick; valves normal. Liver enlarged; edges rounded; substance fatty. Kidneys: Size normal; parenchyma congested. Spleen very large, substance soft and jelly-like. Intestines: Ulcers in ileum, varying in size from a pea to a 5-cent piece, were elevated and ran crosswise around the intestines, and had a yellowish, hard surface. Brain somewhat congested; small tubercles found on pia mater.

ACUTE PLEURISY.

W. D.; aged 48 years; nativity, Missouri; admitted to United States Marine Hospital, New Orleans, La., March 19; died March 20, 1895.

History.—The patient, who gave no history, died a few hours after admission to hospital. He was moribund when first examined.

Necropsy (nine hours after death).—Body very obese; rigor mortis quite marked. The heart was fatty, and greatly enlarged, weighing 620 grams. The pericardial sac contained about 100 c. c. of serum, and the cavity of the left ventricle, which was in diastole, was nearly filled with white thrombi entangled in the chordæ tendinæ. The endocardium and aortic intima were roughened and atheromatous. The left lung was shrunken and bloodless; the right lung congested and œdematous. Both pleural cavities were almost wholly obliterated by fibrinous adhesions. The abdominal viscera were apparently normal.

J. M. E.

EMPYÆMA.

CASE 1.

J. L.; aged 62 years; nativity, Russia; admitted to the United States Marine Hospital, New Orleans, La., March 11; died March 19, 1895.

History.—The patient, on admission to hospital, complained of a cough, with scanty mucous expectoration. The respiratory act caused a stitch-like pain in the lower part of the right side of the chest, where there was an area tender to the touch. During the patient's illness there was always an evening temperature ranging from 38° to 40° C. At first the temperature fell to normal during the morning hours, but later there was a remission only. Physical examination showed the signs of a pleurisy of the lower part of the right pleura. The patient was a man of low vitality. Within a few days stupor alternating with delirium became manifest, and the patient sank into a state of exhaustion in which he died.

Necropsy (twelve hours after death).—General nourishment of the body, poor. Chest alone examined. The left lung was normal. A few old adhesions were found between the costal and pulmonary pleura on the left side. The lower lobe of the right lung was compressed by a circumscribed empyæma. The walls of the pus cavity were thick and fibrous. The cavity contained about 150 c. c. of thick, greenish pus, and the whole pleural cavity on the right side was obliterated by adhesions.

J. M. E.

CASE 2.

T. W.; aged 28 years; nativity, Denmark; was admitted to the United States Marine Hospital, San Francisco, Cal., May 16, and died June 10, 1895.

History.—For a month previous to admission had suffered pain in right side of chest. There was slight fever, but no cough or expectoration. On admission there was deficient expansion on right side, pain on deep inspiration and dullness below the fourth interspace, and suppressed respiratory murmur in the same situation. The day after his admission, aspiration was attempted, but only 15 c. c. of fluid was removed. Hydragogues were administered, but no improvement noted. On the 28th there was diarrhœa, which was checked, but recommenced. On June 3, about 5.30 p. m., sudden symptoms of distress developed and œdema of the lungs came on. Remedial measures tried, but failed, and patient died at 10.10 p. m.

Necropsy (twenty-four hours after death).—Heart: Pericardial sac contained about 150 c. c. of fluid. Heart appeared normal and valves were competent. Right pleural cavity was divided into two parts by adhesions. The upper part contained about 500 c. c. of exudate and numerous large coagula. The lower part was an abscess cavity of about 250 c. c. capacity, and contained about that quantity of pus. The pleura was greatly thickened in this situation. Lower and middle lobes of right lung were carnified and atelectatic, but the upper lobe contained air. It was much smaller than normal. Left lung everywhere adherent to parietes of chest and diaphragm. On section appeared very wet. Both kidneys were congested, but otherwise appeared normal. The same may be said of the liver.

C. H. G.
J. G.

ANTHRACOSIS.

J. C.; aged 40 years; nativity, England; admitted to United States Marine Hospital at San Francisco, Cal., August 9, and died December 23, 1894, at 6.10 a. m.

History.—On admittance complained of oppression in breathing, slight watery expectoration, and loss of flesh. He had been ill for five months. He was a chronic sufferer from catarrh. Occupation was that of a coal heaver on board steamer, and his illness began while exposed to inhalation of coal dust. Physical examination revealed dullness and loss of respiratory murmur in the apical regions. Respiratory murmur intensified and chest expansion exaggerated toward bases of lungs, especially pronounced on right side. Respiratory distress increased, digestion became impaired, and treatment only proved palliative.

Necropsy (five hours after death).—Body wasted. Pericardium contained about 50 c. c. reddish serum. Heart had superficial fatty deposit. Right ventricle exhibited hypertrophic dilatation to a moderate extent, the wall being about equally thick and the cavity capacious as the left ventricle. Left pleural surfaces generally adherent and thickened, the chest wall caving in to meet the contracted lung. Major portion of left lung was slate-colored both exteriorly and on section, entirely consolidated and airless. Resistance to cutting and consistency might be compared with that of Dutch cheese. A small part of lower lobe contained some healthy tissue, but most of it was in a state of emphysematous dilatation. Between the consolidated and air-containing portions was an inflammatory zone in process of consolidation. Could oxygenation and life have been otherwise maintained, it is probable that in time the whole lung would have become consolidated as above described. The right pleural cavity was nearly twice as capacious as the left. Pleural surfaces adherent in the apical region and anteriorly opposite the middle lobe. The same condition of solidification was present in most of the upper and middle lobes of the right lung. The lower lobe was greatly enlarged and emphysematous. Other organs appeared normal. Both lungs in this case exhibited typically the condition known as anthracosis.

EMBOLISM, CEREBRAL.

C. T.; aged 59 years; nativity, Pennsylvania; admitted to the United States Marine Hospital, New Orleans, La., March 26; died June 14, 1895.

History.—While in hospital the patient had two paralytic attacks, showing the typical characters of cerebral embolism. The paralysis involved the right upper and lower extremities and the right side of the face. There was no aphasia. Both attacks were recovered from in a few days. With the returning use of the muscles on the affected side after the second attack herpes zona appeared along the course of the left fourth intercostal nerve. With this complication, which took on a severe form and was accompanied by intense neuralgia, the patient became progressively feebler mentally and physically, and died after a period of coma.

Necropsy (nineteen hours after death).—The brain was somewhat under weight (1,260 grams), but otherwise the organ and its membranes were normal. Both ventricles of the heart contained clots, evidently antemortem, and the heart walls were atrophied and fatty. The walls of the aorta were also fatty, and the intima was the seat of atheromatous patches. On the right side the two layers of the pleura were adherent over the apex of the lung. The left lung was congested and œdematous. The abdominal viscera were in normal condition, with the exception of the spleen, which was enlarged, but flabby, shriveled, and of toughened texture.

J. M. E.

CEREBRAL HEMORRHAGE.

CASE 1.

Atheromatous arteries.

W. H. P.; aged 58 years; nativity, United States; was admitted to the United States Marine Hospital, San Francisco, Cal., January 25, and died February 6, 1895.

History.—On admission the patient was suffering from unilateral paralysis, following a stroke of apoplexy which occurred on the previous afternoon. The muscles of the face, tongue, body, and extremities on the right side were paralyzed. There being also aphasia, nothing of the mode of onset nor of the previous history could be obtained from the patient. His face was flushed, eyes congested, and pulse full and of high tension. The case was diagnosed cerebral hemorrhage, and treated accordingly, but without success.

Necropsy (twenty hours after death).—Body well nourished and muscular. On removing the calvarium the meninges were found congested. The gross appearance of the brain was normal. Near the left sphenoidal fissure there was a spongy growth, which compressed without adhering to the brain. The arteries at the base of the brain were all atheromatous. On section, the left lateral ventricle was found to contain a recent large blood clot, while in the right ventricle there was noncoagulated blood. The ganglia of the left side were alone affected, the posterior limb of the internal capsule and the optic thalamus being partly destroyed, as well as the lenticular nucleus. Although large, the hemorrhage did not extend to the fourth ventricle. Other organs not examined.

CASE 2.

Hemiplegia.

M. R.; aged 45 years; nativity, Boston, Mass.; admitted to United States Marine Hospital at San Francisco, Cal., April 1, and died April 9, 1895, at 10.45 p. m.

History.—On admittance patient was in a semistupor. There was complete hemiplegia on left side of body; head was turned to right side, and left pupil dilated. Mental faculties very clouded. Arteries atheromatous. Treatment unavailing. Patient grew more and more lethargic till death.

Necropsy (*twelve hours after death*).—General congestion of pia mater surrounding both cerebral and cerebellar convolutions. Arteries of circle of Willis and larger offshoots calcareous. The right ventricle was filled with clotted blood, with much contiguous disintegration, especially affecting claustrum and external capsule. Right optic thalamus was in condition of softening. Other organs not examined.

CEREBRAL MENINGITIS

CASE 1.

W. D.; aged 27 years; nativity, Russia; entered marine ward, St. Vincent's Hospital, Norfolk, Va., February 5; died February 19, 1895.

No diagnosis was possible for the first days in hospital, the case resembling typhoid fever in the early stages. On the fourth day a delirium much like that in delirium tremens set in and continued increasing until it lapsed into coma, shortly to be followed by death. No history was at any time attainable.

Necropsy (*twelve hours after death*).—A large, well-developed, and well-nourished man. The meninges of the vertex were adherent over much of their extent to the skull, but the adhesions were soft and easily broken, and the bone was healthy underneath. On opening the dura the arachnoid cavity was seen to be in places distended, with bloody serum and masses of soft fibrinous exudate, and in some places obliterated. The exudate was soft and purulent looking, but no collection of pus was observed. The brain over the vertex was red, hyperæmic, and in some patches soft—very soft. At the base the meninges were normal and the brain apparently somewhat anæmic. The ventricles contained no more, apparently less, fluid than usual. On section, the brain seemed normal, save close to the vertex; there the red or softened area was of little thickness, about 0.50 cm. to 1 cm., the latter being the softened places. Thorax: Heart somewhat hypertrophied; valves normal. Both lungs presented a remarkable appearance, especially at the apices. They were traversed by seams and bands of fibrous tissue, between which portions of the lung tissue, much of it emphysematous, projected, marking the surface up into irregular lobules. These bands and nodules of tissue were dense, hard, and black, evidently a fibroid degeneration from inhalation of coal dust. The apices showed this condition especially well; it was less marked in the lower lobes. The apices were markedly emphysematous, as were the free edges of the upper lobes. No lobules were found breaking down, nor was anything looking like a tubercular process discoverable. Abdomen: The liver normal. Kidneys somewhat hyperæmic, but otherwise normal.

H. R. C.

CASE 2.

H. M.; aged 53 years; nativity, Missouri; admitted to United States Marine Hospital, St. Louis, Mo., January 29; died February 20, 1895. Disease, cerebral meningitis; readmitted for tubercle of ankle joint; resection of left ankle joint. Astragalus was found to be the seat of tuberculous ulceration and removed; several other foci were also chiseled out. He did well for a few days after operation, then symptoms of mania set in. The wound healed readily, but his mental condition grew worse, and he became a very troublesome patient. On February 18 he was evidently sinking from some cerebral affection, and he died on the 20th.

Necropsy (*six and one-half hours after death*).—Rigor mortis present; no post-mortem lividity. Brain: Dura healthy; general inflammation of pia, with effusion of lymph over sulci on superior and lateral surfaces of both hemispheres, not so marked at base. Atheromatous (beady) arteries throughout the brain. Those in the sylvian fissures stood out as if injected; general congestion of cerebrum, effusion in lateral ventricles, and a spot of white softening, about the size of a lima bean, found in the anterior part of the corpus striatum; a small spot of white softening was also found in the right lobe of the cerebellum, near the inferior surface. Pons, crura, and medulla apparently normal. Chest barrel shaped; tuberculous abcess found at sterno-clavicular joint on the right side, involving the manubrium, sternal end of the clavicle, and sternal end of the first rib. Extensive pleural adhesions on both sides of chest, most marked on right. Pericardial sac obliterated; visceral and parietal layers of the pericardium firmly united throughout. Right lung contained extensive deposits of carbon; otherwise normal. Left lung had cretaceous particles in apex and at anterior border of the upper lobe, and deposits of carbon throughout. Heart large; atheromatous nodules in bases of aortic and mitral valves; tricuspid and pulmonary valves stiffened from the same cause. Extensive atheromatous patches in wall of thoracic aorta and ulcerative endarteritis in abdominal aorta and common iliacs. Liver slightly fatty, otherwise normal; stomach, pancreas, and intestines normal; kidneys both congested and large; spleen slightly enlarged and congested; bladder showed chronic inflammation at base. Ankle joint: Notwithstanding this man's condition there was a good effort in the line of repair. The cut surfaces of the bones granulated, the divided tendons united, and the tuberculous ulceration ceased. Weight of viscera: Brain, 1,340 grams; left lung, 505; right lung, 465; spleen, 165; left kidney, 165; right kidney, 165; liver, 1,325; heart, 430.

CASE 3.

Inflammatory softening.

L. B. H.; aged 44 years; nativity, New York; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, N. C., July 6; died August 8, 1894.

History.—On admission patient stated that he had been suffering from occasional attacks of fever and headache; was anæmic and depressed; had been exposed to malaria. He was at first supposed to be suffering from malarial toxæmia. Further questioning of himself and his relatives elicited the fact that he had been suffering for several months from periodical attacks of severe headache, and that he had at times spoken and acted in a queer manner. The inguinal glands were found to be slightly enlarged, and patient admitted that he had had a chancre a year previously. Shortly after admission he began to have continuous moderate headache, with occasional paroxysms of great severity. He was placed on large doses of potassium iodide with mercurial inunctions. He improved slowly but steadily, the headache disappeared, and he became more cheerful. On August 6 he had an attack of headache of great severity and speedily became comatose. At 8 o'clock on the 8th his breathing ceased, the pulse remaining full and strong. He was resuscitated from a condition of profound asphyxia by artificial respiration. Two hours later the asphyxia recurred. Artificial respiration was again resorted to and he was bled from the arm (800 c. c). Four hours later apnœa again occurred and death ensued.

Necropsy (*two hours after death*).—Rigor mortis had not occurred. Brain only examined. The dura, which was firmly adherent to the cranium, was chronically inflamed and thickened in patches, especially over frontal and occipital lobes. Some of these patches were firmly adherent to the pia. The arachnoid was abnormally dry. On section of the brain the puncta vasculosa were very marked. The lateral ventricles were dilated, and contained a slightly blood-tinged fluid. The vessels of the ependyma were injected. A portion of the left occipital lobe, constituting the wall of the posterior cornu of the lateral ventricle, was greatly softened, almost diffluent. No other lesions were noted.

MENINGO-ENCEPHALITIS.

C. B.; aged 54 years; admitted to the United States Marine Hospital, Baltimore, Md., July 31, 1894; died January 5, 1895.

History.—Came into hospital suffering with diarrhœa; also complained of incontinence of urine, the latter of two years' duration. Eyesight had also grown dim and he had a double scrotal hernia—the right of twenty-five years' duration, the left, fifteen years. Patient complained of pain in back. Up to September 9 the above symptoms continued, accompanied by vague pains in different parts of body. From September 9 had no trouble in making his water at night, but had to micturate seven or eight times during the day, the quantity passed being very large. The night of September 17 lost consciousness for a short time; felt weak and had headache prior to attack. Was up and about the next morning, but again complained of pain over the body, especially in the back. On the night of December 23 had another attack of loss of consciousness. Pulse very weak, breathing shallow (collapse). From this he rallied very slowly. One week later a marked rigidity was noticed on right side. On movement of joints of this side pain was elicited as evidenced by his facial expression, he being now in a semicomatose condition, unable to comprehend unless spoken to in a very loud tone. All bowel movements passed involuntarily. Stupor on the morning of January 5 was profound; unable to arouse him; patient growing weaker gradually; pulse almost imperceptible. Sinking continued until 12.15 a. m., when he died.

Necropsy (*ten hours after death*).—Rigor mortis marked; body well nourished. On removal of the calvarium all the vessels of the meninges and encephalon were markedly congested, especially the middle meningeal and its branches. Membranes were thickened; the pia mater had dusky, grayish patches at the vertex, and in this situation was adherent to cortex cerebri. Cortex and base appeared normal; heart weighed 360 grams; a quantity of fat was adherent to the left side. Right ventricle was as thick as the left. The whole organ felt oily to the touch, after section. Kidneys: Right, weight 165 grams; left, 180 grams. Collections of fat were found around the calices and in the pelvis. Spleen weighed 180 grams; seemed to be normal. Liver weighed 1.1 kilograms; softer than normal, and congested.

S. N.

ABSCESS OF BRAIN.

Case 1.

J. K.; aged 40 years; nativity, Finland; admitted to United States Marine Hospital, Boston, December 20, 1894, suffering from otitis media. Patient stated that he has suffered thus for two years, but had been much worse for past two weeks.

History.—Case treated by hot douches and packing with boric acid and morphine, for pain. Had several chills with high fever and profuse sweats. Later mastoid cells were trephined, from which blood and pus escaped. This gave considerable relief, and the temperature, which had been high, became normal; pain ceased, and he slept. This improvement lasted for about twenty-four hours. At the expiration of this time he had another chill, fever, and sweat. Complained mostly of pain in temporal region, with vertical headache; pupils unequal; right pupil dilated; internal strabismus of left eye; paralysis of right hand and right side of face. Died January 10, 1895, at 6 a. m.

Necropsy (*six hours after death*).—Body that of medium-sized, slightly built, white man; rigor mortis marked, as was post-mortem discoloration on dependent parts. Nothing of importance was found in internal organs. Lungs congested; some hypostatic pneumonia in posterior inferior lobes right lung; weight, right lung 550, left 350 grams. Heart normal, except a few vegetations on aortic and mitral valves; weight, 300 grams. Weight of liver, 2 kilograms. Weight of left kidney 170, and of right 180 grams. Spleen soft and pulpy; weight, 260 grams. Brain: Membranes inflamed; purulent meningitis of convexities; abscess of brain situated in middle lobe, extending anteriorly to middle convolution, and following sylvian fissure for some distance; area of softening about 5 cm. in diameter. Pus had reached brain through perforation of roof of petrous portion of temporal bone. Death from abscess of brain.

W. P. M.

CASE 2.

J. E. J.; aged 26 years; nativity, Sweden; was admitted to the United States Marine Hospital, San Francisco, Cal., April 24, and died May 18, 1895.

History.—The patient had been healthy until four months previous to his admission, when he suffered from appendicitis, for the relief of which he underwent a surgical operation. Suppuration, high temperature, and delirium followed, the patient making a slow recovery. Excepting the delirium following the operation, no cerebral symptoms were noticeable until the morning of April 24, when there was a sudden severe headache, confined to the right side. Profuse perspiration, dizziness, vision of stars before the eyes, and a temporary faintness appeared at the same time. On admission to the hospital the man complained only of headache, which appeared to be most intense in the right supraorbital and temporal regions. An examination of the eyes, however, led to the detection of homologous amblyopia, there being blindness in the left half of the fields of vision in the patient's point of view, and also inferior hemianopsia in the left eye. Examination of the heart showed that organ to be healthy, the pulse, however, was unusually slow, but full and strong. Two days later the patient was confined to bed, with a feeling of heaviness about the head, in addition to the unilateral pain, which became more intense. Pulse still strong, regular, and slow, 50 beats per minute. The hemianopsia and slow pulse led to the suspicion of lesions in the right occipital tube and in the fourth ventricle, involving the visual center and the deep origin of the pneumogastric nerves. On the sixth day the man complained of pain shooting up from the back of the neck over the temporal bone to the frontal. Pulse slightly accelerated.

Seventh day.—Pain and stiffness more marked at the base of the skull, and tenderness on pressure over the first two cervical vertebræ; also restlessness, low muttering, delirium, and nausea. Pulse, 54; respiration, 16.

Eighth day.—The heart became irregular as to rhythm, while the pulse varied between 60 and 64.

Eleventh day.—Mind wandering; constant groaning for the past week. Pulse increased to 88.

Fourteenth day.—Increase in the intensity of the headache, noisy delirium, intelligence more and more impaired; semiunconsciousness, from which the patient can be aroused with difficulty and only for a short time. Pulse irregular.

Fifteenth day.—Total unconsciousness. The patient now lies quietly on his back, while formerly he remained mostly on the right side. Pulse, 150 and weak; respiration, 24.

Nineteenth day.—Incontinence of urine, pulse rapid (160) and weak, but regular.

Twenty-third day.—Pulse too rapid to be counted accurately, feeble, and compressible.

Twenty-fourth day.—Slight delirium and restlessness. Death during the night.

NOTE.—Throughout the entire period of observation there was neither fever nor vomiting, save on one occasion; no paralysis nor convulsions, nor even any perceptible changes in the cutaneous sensitiveness or reflexes.

Necropsy (ten hours after death).—Body emaciated. On removing the calvarium the meninges were found to be greatly congested and tense, but nonadherent. The membranes of the pons and medulla were in a state of cloudy swelling. Pus was seen escaping through the floor of the third ventricle just anterior to the corpora albicantia. Large encapsuled abcess cavity in the right parieto-occipital convolutions of about 75 c. c. capacity, involving both the white and gray matter as far back as the cuneate lobe. Right ventricle distended with pus, which had burrowed through from the abcess cavity into the posterior horn of the ventricle. Pus was also found in the third and fourth ventricles and at the base of the brain in the neighborhood of the chiasm. The rest of the brain, although much congested, presented no other gross anatomical changes. Other organs not examined.

NOTE.—The abscess was probably chronic, being secondary to the appendicitis, the infection being carried through the blood. It being in the "silent regions" and encapsuled, there were no symptoms during the latent period. When it perforated, however, into the lateral ventricle it probably caused the train of symptoms which the patient described on admission to the hospital. The inferior hemianopsia was perhaps due to changes in the chiasma, secondary to the accumulation of pus in the third ventricle and the rupture of the latter. The cardiac symptoms can be accounted for by irritation, and finally paralysis of the roots of origin of the pneumogastric by the pus which was found in the fourth ventricle.

J. G.

CYST OF BRAIN—EPILEPSY.

J. T.; aged 36 years; nativity, Massachusetts; admitted to marine ward, German Hospital, Philadelphia, Pa., October 30; died December 2, 1894; was first admitted on May 2, 1894, for epilepsy.

History.—Had several attacks which always commenced on the right side. The operation of trephining had been done at the United States Marine Hospital, Boston, Mass., which relieved him for a few months. On July 9 he requested his discharge, and could not be persuaded to remain. He was again admitted October 30, giving the history of having made several trips on a vessel and having had the epileptic attacks as frequently as before. He had no attack while in the hospital this time and seemed to be fairly well. About November 16 he began losing the strength of his right side, and after November 20 he was confined to his bed; at night he had delirium, but during the day his mind was perfectly clear; was somewhat aphasic. On November 30 he fell into a semicomatose state and his condition remained the same until his death, December 2, 1894.

Necropsy (eighteen hours after death).—External appearances: Body fairly well nourished; post-mortem lividity slight; rigor mortis marked. Thoracic cavity: Lungs were normal. Heart: Aortic valves were insufficient. The pleura of the left side showed an old pleurisy. Abdominal cavity: The intestinal tract was not diseased; kidneys were congested; liver was somewhat fatty; spleen congested and enlarged. Cranium: On removing the skull cap an old opening of a trephining operation was seen on the left side, which was filled in with fibrous material. The membranes immediately under the opening were matted together as a result of a meningitis. The brain was œdematous, and a small cyst was found on the left side immediately under the seat of operation in the substance of the brain along the fissure of Rolando.

SCLEROSIS OF BRAIN—PNEUMONIA LOBULAR.

C. N.; aged 44 years; nativity, Norway; admitted to United States Marine Hospital, Boston, Mass., December 11, 1894, suffering from symptoms of anæmia of the brain and cord.

History.—Four weeks previously he had been attacked with giddiness, vomiting, and later became unconscious. At the time of admission he complained of itching, burning pain in feet and ankles, also some pain in shoulders. Never had any venereal disease. Suffers constantly with headache, cramps in limbs, formication, paræsthesia; right pupil dilated; both pupils react to light; died February 4, 1895, at 7.45 a. m.

Necropsy (four hours after death).—Body of medium-sized white male; head unusually large; parietal regions prominent, as also frontal; no cicatrices; rigor mortis very slight; no post-mortem lividity; pupils normal and equal. Heart rather small and in systole, its valves pale and flabby but competent. Left lung weighed 290 grams; right lung, 880 grams, and lower lobe was in stage red hepatization of pneumonia. Liver weighed 1,800 grams; color, red; congested. Gall bladder contained a clear viscid fluid about 20 c. c. in quantity; the bladder itself was tightly adherent to parietal peritoneum. Pancreas weighed 50 grams. Weight of kidneys, left 190 grams, right 160 grams. Spleen weighed 170 grams. Upon removing vertex of calvarium and cutting dura the brain peeled out at once as if too small for cavity of skull. No tumor or clot could be found, but the brain itself was exceedingly tough and hard to cut. A stream of water would not wash any part of cut surface. The brain throughout was sclerosed.

W. P. M.

DEMENTIA.

C. C.; aged 71 years; nativity, New Jersey; admitted to United States Marine Hospital, St. Louis, Mo., January 2; died January 22, 1895.

History.—There were no special symptoms in this case on admission. On the condition of his arteries, a diagnosis was made of chronic endarteritis. In a few days it was apparent that the case was one of senile dementia. His mentality was feeble, speech at times incoherent, partial right hemiplegia, unable to feed himself, and his urine and fæces were passed in the bed. The diagnosis was, accordingly, changed to dementia on the 12th. His progress was steadily downward, and he died at 1.17 p. m., January 22, 1895.

Necropsy (two hours after death).—Post-mortem lividity; no rigor mortis. Head: Scalp pale, dura normal, brain shrunken within dura. After escape of a large amount of serum following section of that membrane, marked congestion of the pia, with recent deposits of lymph over sulci was discovered. Nothing abnormal found in right hemisphere, except numerous puncta vasculosa. In the left hemisphere four areas of red softening in various stages were found—two near the cortex in the line of the fissure of Rolando, and beneath centers for arm and leg; one forward in the anterior lobe, and one near the cortex in the occipital lobe, near the calcarine fissure. This last was the largest, and about the size of a small walnut. A spot of red softening the size of a hazelnut was found in the cerebellum in the vermiform process. The hemisphere contained nothing worthy of note. Extreme venous congestion was present throughout the brain. Chest: Few adhesions in right pleural cavity, numerous in left. The lungs presented evidence of old tubercular deposit at the apices, and in the upper lobes. Bronchioles contained pus. Heart normal; valves competent; atheromatous patches at bases of aortic and mitral valves, and in wall of ascending aorta. Liver cirrhotic; pancreas, stomach, and intestines normal, except the vermiform appendix, which was doubled on itself, thickened, and at the flexure a few drops of pus exuded on section. Spleen, very small, cirrhotic, and contained isolated nodules of a firm albuminoid material about the size of a large pea. Kidneys cirrhotic, left much larger than the right, cortical substance much wasted, capsules adherent, small retention cysts on surface, and a few deposits similar to those found in the spleen discovered in the cortex. Ureters and bladder normal. Weight of viscera: Brain 1,385 grams, heart 250, left lung 605, right lung 1,005, liver 1,408, spleen 85, pancreas 60, right kidney 105, left kidney 170.

VALVULAR DISEASE OF HEART

Case 1.

Aortic.

J. R.; aged 33 years; nativity, United States; was admitted to the United States Marine Hospital, San Francisco, Cal., October 18, and died October 27, 1894.

History.—For the two months preceding admission he had been suffering from what appeared to have been rheumatic fever, contracted during a cruise in Bering Sea. Cough and dyspnœa subsequently developed. On admission a few moist rales were heard over both lungs; cardiac dullness increased; aortic obstructive and regurgitant murmurs; œdema of legs and ankles; dyspnœa, cough, and muco-purulent expectorations.

Necropsy (thirteen hours after death).—Rigor mortis noted. Body well nourished; tissues about legs and ankles œdematous; pericarditis especially marked around the great vessels; calcareous deposits on the surface of the pericardium. Heart weighed 690 grams; aortic valves broken down and calcareous; other valves healthy. Lungs œdematous. Liver enlarged (weight, 2,150 grams), and presented on section a nutmeg appearance. Kidneys congested.

CASE 2.

Aortic.

A. C. G.; aged 78 years; nativity, New York; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., October 24; died October 28, 1894.

History.—When admitted had some œdema of legs, dyspnœa, and was anæmic; was also suffering with intermittent fever; died suddenly during the night of the 28th.

Necropsy (fourteen hours after death).—Body fairly well nourished; post-mortem lividity slight; rigor mortis marked Thoracic cavity: Lungs normal in structure, much pigmented; pleura normal; pericardium thickened, and small quantity of fluid in its cavity. The heart was dilated; walls of the ventricle were thinner and softer than normal; the capacity of the ventricles was increased so that the mitral valve was no longer competent. The structure of the mitral was healthy. The aortic valves were thickened, studded with calcareous deposits, and the segments joined together so as to form a hard inelastic calcareous ring, leaving an aperture in the center through which the blood was forced. The pulmonary and tricuspid valves were healthy, the ascending portion of the aorta was dilated, and its walls were studded with calcareous plates. Abdominal cavity: The liver was much enlarged and had a greenish tint; spleen enlarged and softened. The other abdominal viscera were normal; brain not examined.

CASE 3.

Aortic.

J. G.; aged 38 years; nativity, Illinois; admitted to United States Marine Hospital, Chicago, Ill., October 1; died October 3, 1894.

History.—Two years ago he was struck on left chest by a timber. Pain and palpitation of heart ensued for a few days. After this he felt well until six weeks ago, when cough and palpitation of heart began, also pain after coughing. On admission there was general anasarca and great dyspnœa. Heart sounds were very indistinct; a blowing systolic murmur was audible over larger portion of præcordia, broadest at left of sternum from fourth costal cartilage to seventh, transmitted into axilla and back. First sound was nowhere distinct. Pulse, 110 to 120; water-hammer pulse. Respiration very labored, moist rales in both lungs posteriorly. Edge of liver felt considerably lower than normal. Urine, sp. gr. 1.022, acid, no sugar, large amount of albumen. On October 2 his condition seemed improved, but on the 3d his dyspnœa was increased; sputum became bloody. Died at 7 p. m.

Necropsy.—Pericardial sac contained 60 c. c. of clear fluid. Heart weighed 590 grams. Aortic valve was incompetent, the segments small, quite rigid, margins thickened, cord-like, and fringed with small vegetations. The mitral also was probably incompetent; the others competent. The left ventricle was of large size, wall thick and containing much blood. Right ventricle small relative to size of whole organ. For an inch above aortic valves in aorta there was a ring of calcification and small vegetations. Still further were found white atheromatous plaques. Pleural cavities: Right, no adhesions, about 300 c. c. of clear fluid; left, two bands of adhesion to middle lobe, 700 to 1,000 c. c. of clear fluid. Lungs: Left weighed 630 grams; right, 600 grams; both deep purple externally, bright red on section, containing much blood. Mucous surface of stomach presented many small ecchymoses. A small amount of fluid in peritoneal cavity. Liver: Weight, 1,330 grams, surface smooth, deep coffee-color, lobules very distinct, border white, center deep reddish-brown. Gall bladder contained bile; no concretions. Kidneys: Left, 190 grams; right, 230 grams; capsules not adherent; both organs congested. Spleen weighed 135 grams; appearance normal.

CASE 4.

Aortic.

C. C. (colored); aged 45 years; nativity, Ohio; admitted to the marine ward, Cleveland City Hospital, Cleveland, Ohio, December 27, 1894; died January 8, 1895.

History.—Patient had shown signs of valvular heart trouble for several months; he was placed upon tincture digitalis, and for a time improved. Later on œdema of the lungs with excessive œdema of the legs ensued, with marked dyspnœa, and the patient rapidly declined.

Necropsy (*six hours after death*).—Rigor mortis moderate. The pericardium contained 125 c. c. clear serum. The heart was enormous, being fully two and one-half times its normal size. The walls of the left ventricle were about 3 cm. in thickness, and those of the right about 1.5 cm.; there was a corresponding hypertrophy of the papillary muscles and tendinous cords. The auricles seemed to be of the natural size. All cavities contained ante-mortem clots. The aorta was half again as large as normal, and it was easy to conceive that the aortic valves would have trouble in closing the orifice. Other valves of heart normal. The pleural cavities each contained 50 c. c. of clear serum; both lungs were markedly œdematous, the right one being somewhat compressed. The liver showed chronic passive congestion. The spleen was in a like condition. Both kidneys were granular and contained numerous small cysts beneath the capsule, while the right had one cyst 4 cm. in diameter invading its cortical and medullary portions. Pancreas normal. Stomach and intestines injected and contained considerable fluid, otherwise normal. Bladder contained 25 c. c. urine. The brain was œdematous, otherwise normal.

R. M. W.

CASE 5.

Aortic.

D. C.; aged 24 years; nativity, Tennessee; was admitted to the United States Marine Hospital, Cairo, Ill., April 10, and died May 1, 1895.

History.—Patient had suffered with rheumatism three years previously, and on recovering had been able to continue work until one month before admission, when he was troubled with shortness of breath on exertion and rapidly increasing ascites. On admission his abdomen was greatly swollen and full of water, heart sounds indistinguishable, pulse 124, thready; lung resonance good. Temperature 39.4° C., respirations when quiet in bed 50, urine 400 c. c. per twenty-four hours, sp. gr. 1.025, with decided traces of albumen. He was immediately placed upon digitalis and strychnine every four hours, with stimulants and milk ad libitum. The renal secretion became profuse and the ascites promptly disappeared, revealing an enlarged and somewhat tender liver. His temperature daily fluctuated between 36° C. and 40° C., and the pulse from 108 to 148 per minute. Quinine was given from time to time in full doses, but without particular effect. The nocturnal diarrhœa of which he complained on entrance was modified sufficiently to give the least trouble possible. He died from exhaustion.

Necropsy (*twelve hours after death*).—Body that of a muscular young negro man much emaciated. Post-mortem lividity and rigor mortis marked. Heart hypertrophied, though flabby and somewhat thinned in places; weight 512 grams. None of the valves appeared competent, the mitral valve having almost disappeared. Lungs: Left adherent throughout to chest wall and could be detached only piecemeal and with great difficulty; right lung weighed 800 grams, congested, but otherwise normal. Liver dark, somewhat fatty; weight 1,800 grams. Kidneys: Left weighed 240 grams, somewhat flabby; right weighed 220 grams, dropsical. Spleen dark, weight 180 grams.

J. M. G.

Case 6.

Aortic.

W. H.; aged 45 years; nativity, New York; admitted to United States Marine Hospital, Baltimore, Md., April 7; died July 5, 1894.

History.—Was in this hospital previously from March 26 to March 30, 1894, when he complained of dizziness and pain in the head, from which he had already suffered about a week before he came to the hospital. Examination revealed an atheromatous condition of the arteries, and a systolic murmur of the heart was also noted. After remaining in the hospital five days he felt so much better that he was discharged at his own request. But he returned, and was again admitted to hospital April 7, when the following conditions were noted: Œdema of the face and lower extremities and considerable fluid in the abdominal cavity. He complained of no pain other than a feeling of constriction about the abdomen, and he was "short of breath." An aortic as well as a mitral murmur was noted at this time (mitral regurgitation and aortic stenosis) and the urine contained a small quantity of albumen. For a few days patient seemed to improve under treatment, but upon the whole there was a gradual failure; the legs and scrotum became enormously distended, a severe diarrhœa set in toward the end of the case and continued until death, which occurred on the morning of July 5, 1894.

Necropsy (seven hours after death).—Rigor mortis well marked, heart enlarged; marked hypertrophy of left ventricle and thickening of mitral valve. The aortic orifice was narrowed; the valves were rough on their edges and contained deposits of calcareous matter. The lungs were of a dark color (engorged), and the pleural and abdominal cavities contained a considerable quantity of watery fluid. The liver was enlarged and of a dark brown color. Kidneys were apparently not diseased.

Case 7.

Aortic.

P. M.; aged 48 years; nativity, Russia; admitted to United States Marine Hospital at San Francisco, Cal., November 22, 1892, and died October 28, 1894, at 7.25 a. m.

History.—On admittance patient complained of dyspnœa, cough, and slight dropsy. Disease was diagnosed valvular disease heart, aortic and mitral. He had been treated here some months before for heart trouble. Following soon after last admittance to hospital he began to have attacks of angina pectoris, attended with much agony. The attacks of angina pectoris exhibited a curious periodicity, recurring about every third or fourth week, followed by general anasarca, dyspnœa, and cerebral disturbances. The dropsy would proceed to a certain limit and then subside. The subsidence often occurred spontaneously; at other times through the common eliminating channels, apparently in response to medication. On many occasions the epithelium covering the legs suffered loss of continuity, and, discharging serum, the dropsy was relieved in this way. Paracentesis abdominális was performed several times. During attacks of angina pectoris and subsequent dropsical accumulation considerable quantities of morphine were required, often as much as a gram per day. Succeeding abatement of the dropsy, the patient enjoyed several days of comparative well-being, and at these times only small quantities of morphine, or none at all, were administered. He never developed the morphine craving, notwithstanding the drug was administered for over two years. This striking example of will power was only equaled by the pertinacity with which he clung to life, in spite of enormous dropsical distention, livid cyanosed face, bed sores that prevented lying down to sleep, tortured with frightful dreams by night and semi-asphyxiation by day.

Necropsy (*three and one-half hours after death*).—Tissues dropsical; large, muscular man, fairly well nourished; pericardial walls adherent. On endeavoring to separate surfaces the thin wall of right ventricle was torn through. Heart showed great eccentric hypertrophy, and weighed 790 grams. Valves were healthy except for slight calcareous deposit on the aortic semilunar segments. The murmurs audible during life were due to relative incompetency. Orifices of coronary arteries were normally pervious. The ascending and transverse arch of the aorta exhibited a symmetrical pear-shaped dilatation with the base toward the heart. The aortic sinuses showed three independent dilatations, each about one inch in depth; saccules projecting from the large sac. The walls of the expanded arch were of a streaked yellowish-white color, stiff and inelastic from calcareous degeneration. Left lung very much contracted, upper lobe airless. Right lung slightly congested, otherwise normal. Liver diminished in size. Uniform yellowish pigmentation. Fibroid granular condition on section. Spleen, kidneys, and other viscera healthy.

CASE 8.

Mitral.

M. G. (negro); aged 53 years; nativity, South Carolina; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, S. C., October 2; died November 30, 1894.

History.—Felt well until three weeks before admission, when he began to suffer from pain in right hypochondrium and dyspnœa. On admission there was distressing orthopnœa, intense pain in right hypochondrium, ascites, marked œdema of legs and slight œdema of face and upper extremities. The heart was enlarged and its action weak. There was a systolic murmur at the apex. The urine was albuminous. The symptoms were promptly relieved by hydragogue cathartics and full doses of diuretin. Improvement continued for a time under digitalis and strychnia, but symptoms finally returned. The abdomen was tapped twice and venesection once resorted to in order to relieve urgent dyspnœa. Death occurred with symptoms of pulmonary œdema.

Necropsy.—Body anasarcous; abdomen distended. Thorax: Both pleural sacs contained a moderate amount of serum; the lungs were engorged with blood and œdematous serum flowing freely on section. The pericardial sac was moderately distended with serum. The heart was very large, all the cavities more capacious than normal and their walls thickened. The mitral and tricuspid valves were atheromatous and incompetent. The aortic valves were normal. The arch of the aorta was atheromatous in patches and its intima roughened. The right cavities of the heart were distended with blood and contained colorless clots. Abdomen: The peritoneal cavity contained a large quantity of serum. The liver and spleen were enlarged from passive congestion. The kidney structure was normal with the exception of intense engorgement. The smallest vessels on the cut surface could be recognized on account of their distention with blood. Other organs normal. Brain not examined.

CASE 9.

Aortic and mitral.

J. H. H.; age, 55 years; nativity, Maryland; admitted to United States Marine Hospital, Baltimore, Md., August 4; died August 6, 1894.

History.—On admission to hospital patient complained of dyspnœa; first noticed his trouble about eighteen months ago; previous to that time he had been a comparatively healthy man; had malaria several times, but with that exception he had never been sick. His present trouble gradually increased in gravity until he was barely able to get upstairs, and was at times entirely helpless, the least exertion causing alarming attacks of dyspnœa. He said he was often troubled with coughing spells, but they were not continuous. During the last three or four weeks he had been troubled with severe pain in left chest. Examination revealed dullness on percussion on the left side, vocal fremitus absent, and respiratory murmur not distinct. Heart enlarged and displaced downward and to the left, impulse of heaving character. Mitral and aortic regurgitant murmurs heard very distinctly.

August 5.—Patient was troubled very much with dyspnœa last night; had to sit up in bed; expectorated some blood at times.

August 6.—About 8 o'clock last night patient was suddenly seized with terrible pains, tearing in character, in heart region, and extending up left breast and down left arm; profuse hemorrhage from mouth and bowel occurred; pulse not perceptible at wrist; heart action weak and irregular, with very distinct murmur. Stimulated with hypodermics of whisky and strych. sulph.; hot bags placed around him; Majendies solution given to relieve pain. Patient died about 12 o'clock, heart having gradually grown weaker until it ceased to pulsate.

Necropsy (*fourteen hours after death*).—Rigor mortis well marked; body very much emaciated; weight, about 120 pounds; height, 6 feet. Left side of thorax was very much distended with fluid; right side but little. Heart weighed 22 ounces; marked dilatation, especially of left ventricle and auricle. The edges of aortic and mitral valves were thickened and hardened, and of a calcareous character, with hard nodular deposits upon them. The aorta was dilated. Liver weighed 2,180 grains, soft, and presented areas of fatty degeneration; also very much engorged. Kidneys: Right weighed 360 grams; on posterior surface there was a large cone-shaped cyst, extending base upward, and containing 360 c. c. of clear fluid; other smaller ones were scattered over surface of organ, some of them connecting directly with the interior of the organ, capsule adherent. Both cortical and medullary portion of kidney were almost entirely obliterated, the organ practically being converted into a cyst, the interior containing fluid milky in character. Left kidney weighed 330 grams; presented about same appearance, but the destructive changes had not gone so far as in the right; at some places it was possible to mark the line between the cortical and medullary portions. Lungs presented no marked changes; were very much congested. Spleen congested; arteries atheromatous thoughout the body.

CASE 10.

Aortic and mitral.

A. E.; aged 44 years; nativity, Germany; admitted to the United States Marine Hospital, Port Townsend, Wash., September 6; died September 6, 1894.

History.—When 17 years old had a severe pleurisy, but completely recovered from the attack without any further trouble. Two years ago had dropsy, which lasted for two months. About eight months ago began to have severe paroxysms of pain in the chest over the region of the heart. These attacks would sometimes last two or three days at a time; and in the intervals he was comparatively well and was able to perform light work. The least exertion caused very discomfortable shortness of breath. This patient was treated in this hospital from April 24 to June 13, 1894, and was much improved, but he returned September 6, 1894, in a very bad condition, and died twelve hours later in great agony.

Necropsy (*eighteen hours after death*).—Body well nourished; rigor mortis well marked. Thorax opened and both lungs found congested. The heart was enormously enlarged, and the wall of the left ventricle was very much thickened. One of the leaflets of the mitral valve was partially destroyed. The cups of the aortic valves were indurated and their elasticity destroyed by calcareous degeneration, and they could not close tightly together for this reason. The aorta was undergoing calcareous degeneration for four inches, and the left coronary artery was undergoing the same change. The liver was very much enlarged. The other organs normal. Brain not examined.

CASE 11.

Aortic and mitral.

C. D.; aged 32 years; nativity, England; admitted to United States Marine Hospital, Baltimore, Md., February 6; died June 23, 1895.

History.—Patient's illness dated three weeks before admission to hospital; said it began with pain in head and legs and some cough (bloody expectoration); pain in region of heart and shortness of breath. Present condition: Œdema of legs and ankles; heart hypertrophied; apex beat below and to outer side of nipple; murmur heard in diastole with greatest intensity over center of sternum and transmitted downward; marked carotid pulsation; abdomen slightly distended; dullness over apices of lungs also noticed. Examination of urine showed about 60 per cent by volume of albumen; sp. gr. 1.035. The dropsical condition became quite marked. Scrotum and lower extremities greatly distended, but under treatment gradually improved; so much so that the dropsy almost disappeared and patient was comfortable, comparatively, though very little change was noted in character of urine. The quantity of urine increased or lessened accordingly as the treatment was changed from diuretics to diaphoretics or hydragogue cathartics. The patient gradually grew weaker. General anasarca supervened and death took place at 2 a. m. June 23, 1895.

Necropsy (*nine hours after death*).—Male, about 5 feet 4 inches in height; brown hair and light-brown eyes; india-ink mark of flag and eagle on right forearm, with initials "C. W.;" body fairly well nourished; anasarca general and marked; œdema of scrotum; rigor mortis not marked; the pericardium contained about 2,000 c. c. of sanguineous serum, occupied the greater part of central portion of thorax, and displaced the lung on either side. The heart was greatly hypertrophied, weighing about 1,000 grams, and was in diastole. The walls of the right ventricle were thicker than normal, and numerous post-mortem clots were scattered among the musculi papillares and columnæ carneæ. The tricuspid valve was competent except in one of its segments. Walls of left ventricle were very thick. The right segment of the mitral valve was deficient, but not entirely incompetent. The left cusp was normal. In the aortic valve atheromatous changes were far advanced. Neither of its segments were competent and its substance crumbled easily under the finger. Pulmonary valves were normal. The right lung weighed 800 grams; left lung weighed 740 grams. Lower lobes of both lungs were intensely congested and dark red on section. Upper lobes congested and œdematous. Liver weighed 2,500 grams; was hypertrophied, hard, and resistant to the knife, presenting on section all the macroscopic appearances of the typical "nutmeg" liver. Right kidney weighed 270 grams; was pale in color and its capsule adherent. Section showed the cortical substance to be pale, the medullary portion very dark in color. Left kidney weighed 250 grams; was similar to the right except that pathological interstitial connective tissue had begun to develop.

S. N.

CASE 12.

Aortic and mitral.—Empyema.—Lobar pneumonia.

W. F.; aged 67 years; nativity, France; admitted to United States Marine Hospital, Chicago, Ill., November 21, 1894; died January 29, 1895.

History.—On admission he was feeble and complained of cough (which started in May, 1894, after exposure on the lakes), of profuse expectoration and shortness of breath. A systolic cardiac murmur was found, most profound at third right costal cartilage, audible over whole præcordia, quite loud at apex, and at times apparently propagated into left axilla. Heart's action regular and of good strength; respiratory murmur exaggerated. Whistling râles all through right lung; no râles on the left. No dullness over chest. Temperature normal for several days. Urine, sp. gr.

1.020, acid reaction, no albumen, no sugar, little sediment; nothing of significance found in sediment with microscope. After the first week he coughed less and slept better. From this time until January 21, 1895, there was no change; cough and slight dyspnœa present; expectoration watery or apparently mucous, and patient was about the ward. At this date he complained of dizziness and inability to eat; cough was more severe and there was pain in right chest. Sputum was purulent, viscid. The temperature on January 21 and 22 was normal; on the 23d it rose to 39° C., dropped nearly to normal on the 25th, and remained between 37° C. and 38° C. Pulse, 100 to 120; respiration, 27 to 30. January 25 there was dullness on percussion over lower right lobe posteriorly; respiratory murmur poor in the back, but apparently the same on the right as on the left; no râles. January 26, area of dullness in right chest more marked; no change detected with change of position. He had great pain, on being moved, at the lowest ribs on the right. Considerable œdema of lower extremities. No further change.

Necropsy.—Pericardial sac normal; contained 5 c. c. clear fluid. Heart weighed 350 grams; aortic and mitral valves incompetent. Calcification in all leaflets of aortic and in one of mitral valve. Aortic opening large, 2.5 cm. in diameter. Walls of left heart of good thickness and cavities little dilated. Muscular tissue not fatty in appearance. Thoracic aorta of very large caliber, atheromatous, and roughened within. Right pleural cavity contained 1,700 c. c. of pus; surface roughened with fibrin. Left pleural cavity, 375 c. c. brownish fluid; a few slight adhesions. Right lung was of small size from compression of fluid, but weighed 870 grams, while the left weighed 450 grams; a few slight adhesions existed on this side. Right lung, upper lobe crepitant, but congested, its bronchioles enlarged and discharging pus; middle, no crepitation, solid, grayish, greatly enlarged bronchioles from which pus exuded; lower lobe crepitant, but semisolid, red, bronchioles as in other lobes; no appearance of tubercle in any portion. Left lung somewhat congested below, otherwise normal. Intestines not opened; apparently normal. Liver brownish yellow, mottled with lighter yellow areas externally, yellow on section, and somewhat granular, lobules indistinct; weight, 1,800 grams; 35 cm. in longest diameter, left lobe being especially long and thin.

Gall bladder and ducts normal. Kidneys of normal appearance; weight of left, 150 grams; of right, 120 grams. Pelvis and ureters normal. Spleen weighed 140 grams; surface rather white, mottled with yellow areas, which in places looked like pustules of low elevation. Section showed that these were limited to the capsules and were solid. Capsule peeled off with unusual ease without tearing the organ. Internal appearance of organ of increased density and firmness, otherwise normal.

J. B. H.
S. D. B.

Case 13.

Aortic and tricuspid—Rupture.

H. C.; aged 68 years; nativity, Maine; admitted to United States Marine Hospital, Boston, November 8, 1894, suffering with asthma and other complications of valvular disease of heart; did not improve, but became dropsical, and died January 7, 1895, 6.15 p. m.

Necropsy (10.30 a. m. of January 8).—On opening abdomen a large quantity of serous fluid escaped. Chest cavity also contained fluid; pericardial sac contained probably 500 c. c. of blood mixed with serum. Heart enormously dilated and infiltrated with fat; its tissues very soft and easily torn. A rupture about 3 cm. in length was found in right ventricle, near auriculo-ventricular septum; the lips of this tear contained blood clot. Weight of heart, 850 grams. Aortic and tricuspid valves incompetent and contained calcareous matter. Thoracic aorta dilated and atheromatous for about 7 cm. from origin. Pleural cavity filled with fluid. Both lungs congested; left lung weighed 510, and right lung 600 grams. Stomach chronically inflamed; the mucous membrane showed petechiæ and many small ulcers. Liver, nutmeg, chronically congested; weight, 1,550 grams. Gall bladder contained two small calculi. Kidneys somewhat granular; weight of left 190, and of right 170 grams; contained small hemorrhagic infarct; pelves dilated. Spleen, nutmeg; weight, 250 grams.

W. P. M.

PERICARDITIS.

CASE 1.

W. C. (colored); aged 33 years; nativity, Pennsylvania; admitted to United States Marine Hospital, Louisville, Ky., May 18; died May 28, 1895.

History.—Upon admission it was almost impossible to elicit any history whatever from the patient. After long and close questioning, his answers being mainly in monosyllables, it was ascertained that he had been feeling sick for a month, during which time he had had a constant headache, frequent attacks of vomiting, chilly sensations every evening, and a slight cough. Bowels most of the time had been constipated. No dyspnœa. Tongue was thinly coated, pale, and flabby. Temperature, 36.8° C.; pulse, 89; respiration, 20. The day after admission he complained of a feeling of oppression in the precordial region. It was noticed that although he coughed very little he expectorated a great deal of thick, purulent matter streaked with blood. No dyspnœa. He vomited after eating, and eructated a good deal, but stated he could not do so freely because of pain it caused in chest. Percussion note on both sides of chest was clear; respiratory murmur normal; heart sounds normal, but slightly accentuated. Temperature continued subnormal; pulse, 90.

May 21.—Temperature, 36.4° C.; pulse, 92. Feels somewhat better, but still complains of pain under and a little to the left of sternum. Expectoration still streaked with blood. Percussion note over both sides of chest unusually resonant, almost tympanitic, except at base of right lung posteriorly, where the note is high pitched. Respiratory murmur low and breezy. Heart sounds still accentuated, especially the second, which, heard in the fourth left intercostal space, is not only accentuated, but prolonged and followed by a friction murmur. At 6 p. m., about the same; temperature, 36.2° C.; pulse, 80; respiration, 20.

May 22.—Temperature, 36.6° C.; pulse, 80. Nausea continues, stomach rejecting all nourishment. Bowels moved twice during the night.

May 23.—Temperature, 36.4° C.; pulse, 88; no better. Expectoration this morning contains more blood, bright red in color; complains of discomfort in throat and under sternum; coughed more last night; no congestion of fauces; tongue thickly coated and dry. Percussion note still clear, except at base of right lung, where it is high pitched. Heart sounds less accentuated. At 6 p. m., no change.

May 24.—Temperature, 36.2° C.; pulse, 96; respiration, 30; no improvement, though patient says he feels somewhat better; dullness at base of right lung; respiratory murmur very indistinct, even during a deep inspiration. Expectoration continues sanguinolent; tongue still dry and coated. The subnormal temperature while the right lung and pleura are both involved is remarkable. At 6 p. m., temperature 36.4° C.; pulse, 100.

May 25.—Temperature, 36.4° C.; pulse, 100. Vomited matter this morning contains some blood. At 6 p. m., temperature, 36.2° C.; pulse, 96.

May 26.—Temperature, 36.4° C.; pulse, 96. Heart's action this morning seems normal; otherwise patient seems the same. At 6 p. m., temperature 36.4° C.; pulse, 96; has suffered a great deal all the afternoon with pain in precordial region.

May 27.—Temperature, 36.4° C.; pulse, 88. Rested very well after the second dose of morphia last evening, and feels somewhat better this morning, but still has pain in precordial region. Expectoration still contains blood, but less than heretofore; has not vomited since yesterday; tongue very dry; subsultus tendinum; marked pulsation of temporal and carotid arteries. There is a loud friction murmur following both sounds of heart, but much more marked following the second. It almost obscures the valvular sound. Heart intermittent. With every pulsation there is a loud splashing sound as though the heart were churning fluid in the pericardium. Breathing labored. An aspirating needle introduced failed to draw off any fluid; pushed in a little deeper and some bright blood flows into syringe. Bleeding stops immediately upon withdrawal of needle and no discomfort ensues. At 6 p. m., temperature 36.4° C.; pulse, 84; seems about the same.

May 28.—Temperature, 36.8° C.; pulse, 76; growing worse hourly; died at 11.25 a. m.

Necropsy (*twenty-two hours after death*).—Body well nourished; rigor mortis well marked. Pericardium inflamed and contains about 30 c. c. of straw-colored fluid. Heart entirely empty, except the right ventricle, which contains a small antemortem clot. Left pleura contains about 200 c. c. of fluid, the right about twice as much; no adhesions whatever. Left lung congested; right lung deeply so, especially at base, and is also œdematous. Near the base of right lung, posteriorly, there is a cyst about the size of an English walnut, filled with a cheesy material. Liver pale- The spleen and both kidneys, though normal in appearance otherwise, are remark. ably small, the former being only half the normal size, while the kidneys measure only 7 cm. in length, 4 in width, and 2 in thickness. Mucous membrane of stomach is almost gangrenous and smeared over with a greenish, purulent-looking fluid.

H. T. G.

Case 2.

Substernal abscess.

J. R. H. (negro); aged 24 years; nativity, South Carolina; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, S. C., October 11; died October 13, 1894.

History.—Very little history could be obtained. Patient stated that he had been ill for eighteen weeks. The respiration was hurried, and the heart's action very weak. Coarse rales were heard over both lungs. There was dullness at base of left lung continuous with heart dullness. The right lung was moderately dull at back.

Necropsy.—On lifting the sternum a large abscess of the anterior mediastinum was opened. The cavity was in relation with the lower half of the sternum and the external wall of the pericardium. It extended slightly beyond the left border of the sternum. There was no communication between the abscess and the pericardial sac. The lungs were engorged with blood and moderately œdematous, otherwise normal. On opening the pericardial sac a typical sero-fibrinous pericarditis was discovered. The sac contained about 300 c. c. of turbid serum, and its inner wall, as well as the surface of the heart, was covered with a liberal deposit of lymph. The endocardium and valves were normal. The abdominal organs were normal. The mediastinal and bronchial glands were enlarged and some of them softened. The abscess was probably due to the rupture of a tubercular gland.

ANEURISM OF THE ARCH OF THE AORTA.

Case 1.

J. P.; aged 27; nativity, South Carolina; was admitted to the marine ward, German Hospital, Philadelphia, Pa., March 16, 1895, with lobar pneumonia, from which he recovered. He became gradually stronger, but he had a very persistent pulmonary cardiac murmur. On May 15 he was taken with cramps in the abdomen, and died shortly afterwards from heart failure.

Necropsy.—Thorax was found to contain fluid on left side; right lung congested. Heart enlarged, hypertrophied, and dilated; all valves incompetent from distention. The pulmonary arteries were almost closed from pressure of an aneurism of ascending and transverse aorta. The ascending and transverse aorta was seat of fusiform aneurism about the size of a large orange. An accessory sac was found on posterior wall of aneurism, the wall of which was ulcerated and very thin. A rather firm clot was found within the aneurism, which apparently obstructed the lumen of the vessels. All the venous system was filled with dark, thick blood. Liver enlarged and deeply congested. Spleen much enlarged, firmly adherent to all surrounding structures; capsule thick; substance congested; kidneys congested.

G. T. V.

CASE 2.

J. I.; aged 40 years; nativity, England; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., September 26; died September 26, 1894.

History.—Patient came into the office and asked for a hospital permit, saying he suffered with shortness of breath. Upon examination, an aneurism of the arch of aorta was detected. That night he went to the closet, and while there cried for help. He was suffering with extreme dyspnœa, pain in chest, and great prostration. He was placed in bed and died in a few minutes.

Necropsy (fourteen hours after death).—Body well nourished; rigor mortis marked. Thoracic cavity: The pericardium was thickened and contained 200 c. c. serous fluid. Heart was hypertrophied. The ascending portion of arch was dilated, its caliber being 4 cm. in diameter. The transverse portion of arch of aorta was much dilated, forming an aneurism, which was 7.5 cm. wide and 10 cm. long; there was no deposit in its walls; nature had made no attempt at cure; lungs were congested. Abdominal cavity: The abdominal viscera were macroscopically normal. Brain not examined.

ANEURISM OF THE THORACIC AORTA.

CASE 1.

E. A.; aged 49 years; nativity, Italy; admitted to the United States Marine Hospital, New Orleans, La., July 6; died August 6, 1894.

History.—Patient, on date of first admission, gave a history of chronic pleurisy on the right side. Later he suffered from marked dyspnœa, especially on exertion, and unaccompanied by any pleural effusion. On August 6, 1894, the patient died suddenly of a profuse hemoptysis.

Necropsy (fifteen hours after death).—Body fairly well nourished; rigor mortis marked; slight post-mortem lividity; pupils dilated; height, 5 feet 5 inches. Heart: Weight, 265 grams; smaller than normal; endocardium atheromatous; pericardial sac containing a sanguineous fluid; aortic and mitral valves incompetent; size of ventricular cavities diminished, and ventricular walls thinned. The thoracic aorta was the seat of a fusiform dilatation, and the intima was atheromatous. Trachea normal and filled with frothy blood. Lungs, particularly the left, congested and œdematous. Right lung weighed 750 grams; left lung, 1,035 grams. Adhesions in the right pleural cavity. Gastro-intestinal tract congested throughout. Liver and kidneys normal. Spleen weighed 335 grams; congested; capsule adherent.

CASE 2.

O. A.; aged 50 years; nativity, Sweden; was admitted to the United States Marine Hospital, Boston, Mass., February 16; died February 24, 1895.

History.—At time of admission he had had a severe cough for five weeks; experienced considerable difficulty in breathing; occasionally vomited; did not complain of any pain. Remained in this condition until morning of death, when, as he was in the act of getting some water, he suddenly fell and had a hemorrhage, which flowed from his mouth. This hemorrhage was followed by two more in rapid succession, the patient losing in all about half a gallon of blood.

Necropsy (twenty-eight hours after death).—Body of medium size and fairly well nourished; post-mortem lividity present at dependent portions. Heart weighed 300 grams; left ventricle firm and contracted; right ventricle somewhat dilated. Pericardial sac contained a small amount of fluid. Aortic valves slightly incompetent, and had on them several small calcareous deposits, which, however, did not interfere with their action. A fusiform aneurism took up the whole of the thoracic aorta, and for a space corresponding to the second, third, and fourth dorsal vertebræ had dissected behind the tissues covering the vertebræ and the rib on the left side, eroding the bodies of the second and third dorsal vertebra. The œsophagus thus lay directly in front of the aneurism, and a small hole was eroded through its coats at a point corresponding to the third dorsal vertebra. This was the point of rupture, and the blood flowed into the stomach and out through the mouth. Both lungs collapsed; weight of left, 250 grams; right, 300 grams. Œsophagus eroded through on posterior aspect at a point corresponding to the third dorsal vertebra. Stomach distended with coagulated blood. Liver somewhat congested; hard and friable at center of right lobe; dark red in color; weight, 1,730 grams; gall bladder filled with gall. Kidneys normal; weight of left, 130 grams; right, 140 grams. Bladder contracted and coats considerably thickened. Spleen normal; weight, 130 grams.

W. P. M.

Case 3.

Cancer of stomach.

R. K.; aged 41 years; nativity, Alaska; was admitted to the United States Marine Hospital, San Francisco, Cal., February 18, and died May 26, 1895.

History.—Had been suffering with dysentery for the three weeks prior to admission, but was almost convalescent then, and rapidly improved under treatment. Had also for the past two years suffered from pain in the chest; cough, with copious mucous expectoration, and dyspnœa on slight exertion. During this time he had progressively emaciated until at the time of his admission he was reduced 31 pounds in weight. On examination the thorax was found bulging, sternum prominent, and supraclavicular spaces sunken. Expansion was equal and apex beat of heart normally placed. No dullness noted on percussion, but pain on pressure over second right costal cartilage was found. On auscultation bronchial breathing heard below left clavicle. Slight murmurs were also heard with the first sound of the heart, but these were not constant. No other signs of importance were noted. Cough was very distressing and expectoration copious, and all remedies failed to relieve. Emaciation progressed and patient grew weaker. About May 1 began to suffer constant abdominal pain, which was aggravated by eating or by pressure over epigastrium. Vomiting now became of daily occurrence, and partly digested blood was a feature of the ejecta. All symptoms became aggravated and patient sank rapidly until death ensued.

Necropsy (*twenty-six hours after death*).—Lungs were partially bound to the parietes by a few pleuritic adhesions; a small area of consolidation of both lungs bordering on the mediastinum. Lungs otherwise appeared healthy to the naked eye. Heart not enlarged, and valves apparently competent. A large fusiform aneurism of the thoracic aorta occupied the mediastinum, and had became attached by adhesions to the lungs on both sides. The aneurismal dilatation was about 20 cm. long and extended from a point opposite the beginning of the ascending part of the arch of the aorta to the opening in the diaphragm. Its capacity was about 450 c. c. and it was filled with a laminated organized clot, which was tunneled for the blood stream. The postero-lateral wall was deficient in one circular spot of about 3 cm. in diameter, its place being supplied by the body of the ninth dorsal vertebra, which was somewhat eroded. Liver was reduced in size, but, excepting paleness, did not appear diseased. Stomach was greatly dilated, owing to the obstruction at the pylorus by a cancerous growth. The disease had not progressed far, but the lumen of the orifice was very much encroached upon. The cancer was probably of the scirrhus variety. A large ulcerous patch of irregular outline and ragged edges, about 2.5 cm. in diameter, was found just to the pyloric side of the cardiac orifice, along the lesser curvature. There was considerable staining of the adjacent tissues with sanguineous effusion. Pancreas was adherent to the stomach at the greater head. Other organs appeared normal.

C. H. G.
J. G.

ANEURISM OF THE ABDOMINAL AORTA.

CASE 1.

J. T.; negro; aged 48 years; nativity, Virginia; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., February 13; died March 25, 1895.

History.—The above diagnosis was recorded as being most probable, the alternative being a vascular neoplasm about the head of the pancreas. The pains, which had been incessant and agonizing, ceased to a great extent after confinement to bed and the exhibition of iodide of potash in moderate doses. Died by syncope beginning while sitting up, with very little pain; lived seven hours after syncope came on.

Necropsy (ten hours after death).—A large, big-boned man, poorly nourished. On opening the thorax the heart was found in diastole, flabby, and with but little fat; about normal pericardial fluid. No valvular lesions. Arch of aorta not atheromatous. Lungs presented the usual pleuritic adhesions and considerable black deposit, with hyperplasia of the connective tissue and thickening in both apices. No evidence of tuberculosis. Abdomen contained bloody fluid and blood clots. A good-sized aneurism (saccular) of the aorta, just below the cœliac axis, existed, in which a small tear had occurred on the lower right aspect. The tumor was about as large as one's fist, and the tear was small, about 1 cm. long, and entirely blocked up by a plug of old organized fibrin. Its walls were, except at the torn place, thickened by deposits of fibrin, which were tough and closely adherent to the coats of the tumor. At the place where the rent occurred the walls were much thinned. Evidently the first gush of blood where the rent occurred had loosened the piece of fibrin, which had fallen into the rent, and allowed the blood to escape very slowly; hence the slow death.

H. R. C.

LOBAR PNEUMONIA.

CASE 1.

H. S. (colored); aged 19 years; nativity, Pennsylvania; was admitted to United States Marine Hospital, Louisville, Ky., February 6; died February 19, 1895.

History.—Patient stated that he had been sick for four days, the attack commencing with a severe chill and cough. He complained of pain on both sides of chest, increased by inspiration; coughed a great deal, but expectorated very little. On the evening of admission he coughed so incessantly that it was difficult for him to answer a question. The cough was short and hacking, but caused no increase of pain. Headache, anorexia, bowels regular; denies alcoholic history.

Physical examination.—Temperature, 41° C.; pulse, 120; respiration, 40; breath fetid; tongue coated white, red edges, and pointed; fairly moist. Dullness over lower half of right lung; high-pitched note over upper half of mammary region, and from this point the note gradually lowers to infraclavicular region, where it becomes resonant. Over lower half of left lung the note is high pitched; above, it is resonant. Vocal fremitus increased somewhat over lower half of both lungs. Respiratory murmur increased in intensity over both sides, more especially over area of dullness on right side. No rales. Heart sounds transmitted with exaggeration. Alæ of nose dilate with each inspiration. Face wears an anxious expression and is somewhat cyanosed. Pulse quite weak. Expectoration tinged with blood. He was put on stimulants with large doses of strych. sulph., and for the first few days appeared to do well. Physical examination on the 11th showed that while the dullness over lower half of right lung had given way to simply a moderately high pitched note, the high-pitched note in mammary region of left side had changed to complete flatness. Fine and coarse moist rales on this side from base to infraclavicular region. No rales over right side. Voice so hoarse that he could speak only in a whisper. Pulse so intermittent and irregular that it could scarcely be counted; as near as could be ascertained it was 138; respiration, 57; temperature, 40° C.; tongue, dry. The following few days his condition varied between better and worse until the 16th, when he became delirious at times, sank gradually, and died on date above given.

Necropsy (*twenty-eight hours after death*).—Rigor mortis not well marked; body fairly well nourished; a few recent adhesions over lower half of right lung. The lower two lobes of this lung engorged with blood, but crepitated in most instances. Upper lobe slightly congested. The entire anterior and external surfaces of right lung covered with a greenish lymph deposit about 1 cm. in thickness, mixed with thin pus, which also adhered to the pleura. Small portion of the lower lobe of this lung was in a state of red hepatization, but for the most part was simply engorged. The upper lobe was deeply congested. Heart was in diastole, and normal, though possibly smaller than would be expected to correspond to frame. Liver slightly fatty, but congested. Spleen unusually pulpy. Kidneys normal.

H. T. G.

CASE 2.

H. C.; aged 23 years; nativity, Pennsylvania; admitted to the marine ward, German Hospital, Philadelphia, Pa., November 16; died December 13, 1894.

History.—When admitted complained of pain over the base of the left lung; had cough and dyspnœa; temperature was 39.5° C.; pulse good; respiration rapid and shallow. Physical examination revealed loss of expansion of left side, increased fremitus, dullness over base of left lung, harsh bronchial breathing. There was very little expectoration, and sometimes this was blood-tinged. He rapidly became worse and the entire left lung became involved.

Necropsy (*twenty hours after death*).—External appearances: Body much emaciated; post-mortem lividity marked and rigor mortis slight. Thoracic cavity: The left lung was found to be completely consolidated; on section the exudate was gray and a watery fluid exuded from the cut surface. The right lung was normal; the pleura was normal. The heart showed fatty degeneration. Abdominal cavity: Liver normal; spleen slightly enlarged; intestines normal.

CASE 3.

E. M.; aged 32 years; admitted to United States Marine Hospital, Baltimore, Md., April 5; died April 6, 1895.

History.—Illness began six days before admission to hospital with, as patient expressed it, "pain all over the body and some chilliness." A dose of cathartic pills at this time was followed by hypercatharsis. Three days later he felt pain in lower part of right chest; also complained of loss of appetite, nausea, and vomiting.

April 5.—On admission patient complained of shortness of breath and pain in side; had slight cough and viscid expectoration. There was marked dullness on percussion over right lung posteriorly and below angle of scapula, and absence of respiratory murmur; anteriorly dullness and increased vocal fremitus. Liver enlarged (has been a hard drinker). Tongue dry and cracked; teeth covered with sordes. Temperature, 38.8° C.; pulse, 122.

April 6.—Temperature, 39.4° C.; pulse, 124; death occurred at 5 p. m.

Necropsy (*sixteen hours after death*).—Rigor mortis marked; abdomen slightly distended; livores abundant on posterior surface of trunk and extremities. The right lung weighed 1,860 grams and was adherent to chest wall, pericardium, and diaphragm. The lower and middle lobes were in a condition of incipient gray hepatization; sections were pale red in color, and readily sank when placed in water. The upper lobe was intensely congested. Left lung weighed 750 grams. Posteriorly the engorgement of the lower lobe was well marked; the upper lobe appeared only slightly congested. The right pleura contained a small amount of straw-colored fluid, its parietal and visceral layers were adherent, and flakes of coagulated lymph were scattered over its surface; the left pleura was normal. The pericardium contained 75 c. c. of transparent fluid, and showed inflammatory changes in its parietal layer. Heart weighed 390 grams. The walls of the left ventricle were very thick, and dark red on section; the walls of right ventricle slightly thickened; valves normal. Liver weighed 2,125 grams; somewhat hypertrophied, congested, and resistant on section. Spleen weighed 270 grams; congested and dark red on section. Right kidney weighed 240 grams; left, 225 grams; both kidneys showed considerable congestion.

S. N.

CASE 4.

A. M.; aged 48 years; nativity, Ireland; admitted to the United States Marine Hospital wards, Cleveland, Ohio, February 12; died February 18, 1895.

History.—Patient had a typical attack of lobar pneumonia of the most intense type, the consolidation beginning at the base of the left lung and rapidly involving the entire lung. Mustard poultices were applied assiduously to the chest, and the patient was stimulated to the last.

Necropsy (twelve hours after death).—Rigor mortis moderate. The left lung was solid from base to apex, being in the state of red hepatization, verging at the base into gray hepatization. The pleural cavity was obliterated by a recent effusion of thick, yellow lymph. Portions of the lung sank in water. The right lung was very much congested and œdematous, but no consolidation was found. The pleural cavity on this side contained about 50 c. c. clear serum. The heart was normal. The brain, liver, spleen, kidneys, and digestive tract all showed passive congestion, otherwise normal.

R. M. W.

CASE 5.

T. H.; aged 26 years; nativity, Georgia; negro; admitted to the United States Marine Hospital, Memphis, Tenn., January 28; died February 5, 1895.

History.—The patient was first admitted to the hospital to be treated for a sprain of the joints of the feet. The next day he had a chill, with fever. Under the influence of quinine the temperature returned to normal within two days, but immediately afterwards rose to 41° C. Symptoms of pneumonia then developed, which was thought to be lobular, on account of general bronchitis being present and an irregular area of consolidation existing in the right lung. The disease pursued a violent course and did not yield to treatment, and the patient died on the fourth day of the attack. The result of the post-mortem examination took me by surprise, in showing that the consolidation was limited to the upper lobe of the right lung, and that what I had taken for bronchitis was probably congestion of the lungs. The case was an illustration of the severe character which this disease possesses when attacking the upper lobe of a lung.

Necropsy (two hours after death).—No post-mortem lividity; rigor mortis absent; pupils slightly dilated. The heart weighed 415 grams; firm decolorized clots were found in its cavities; all the valves were competent. It was much hypertrophied and the wall of the left ventricle was particularly thick. The left lung weighed 500 grams. Only slight adhesions were found in the pleural cavity. The lung was congested, but contained no trace of consolidation either in large or small areas. The right lung weighed 1,540 grams. There were adhesions in the pleural cavity and some fresh fibrinous deposits about the upper lobe. The upper lobe was in a state of gray hepatization, completely solidified. The lower lobes were congested, but were free from any solidified areas. The liver was normal in color and appearance; it weighed 2,860 grams. The left kidney weighed 241 grams, the right 274 grams. Both looked enlarged and were abnormally soft and brittle. The left was paler in color than the right. The spleen weighed 225 grams and was normal in appearance.

A. C. S.

Case 6.

J. G.; aged 55 years; nativity, Louisiana; admitted to United States Marine Hospital at Cincinnati, Ohio, April 12; died April 17, 1895.

History.—When patient was admitted to hospital he complained of cough, pain in chest, excessive expectoration, and weakness; he had had a chill. There was free expectoration of rusty sputum. Respiration was 32, and temperature was 39.2° C.

Physical signs.—(1) Inspection revealed incomplete expansion and contraction of the chest; frequent, shallow, difficult respiration. (2) Palpation revealed increased vocal fremitus. (3) Percussion revealed dullness on both sides posteriorly, slightly more marked on left side. (4) Auscultation revealed diminished vesicular murmur on both sides. Patient's strength grew less and less, and his heart showed signs of failure. Patient received palliative and supportive treatment. Patient had been a hard drinker for many years, and his intemperate habits fatally handicapped him in the struggle. He died April 17, 1895.

Necropsy (two hours after death).—Height of subject was 1.8 meters. Circumference at shoulders was 0.9 meter. There was slight post-mortem lividity. Rigor mortis was slight. Heart and pericardium: Heart weighed 313.5 grams, had norma- valves, and was covered with a slight fatty deposit, more marked around coronary arteries. Pericardium was normal. Lungs and pleuræ: Left lung weighed 1,864 grams, was slightly adherent to diaphragm, and the greater part of its lower lobe and a small part of the upper lobe were consolidated. Right lung weighed 377.6 grams, and was congested. Pleuræ were normal. Liver weighed 2,421 grams, was enlarged, and was fatty and sclerotic in patches. It offered a gristly resistance to the knife. The greater part of its surface was yellowish, and distributed irregularly throughout the hepatic substance were yellowish patches. Kidneys: Left kidney weighed 213.8 grams, and the right one weighed 206.6 grams. Both renal capsules were adherent. Both kidneys were slightly swollen, and both renal pelves contained considerable fat. Spleen weighed 171 grams. Several yellowish bodies, of calcareous consistency, varying in size from a pin head to a pea, were found scattered throughout the splenic pulp.

P. C. K.

Case 7.

W. A.; aged 46 years; born in Ohio; admitted to United States Marine Hospital at Cincinnati, Ohio, March 14; died March 19, 1895.

History.—Patient was admitted into hospital complaining of gripes and diarrhea. He had been ill for a day or so. He vomited a greenish material. Coated tongue, anorexia, great thirst, fever, weakness, and pain in right iliac region were present. Temperature on admission was 38.8°. Physical examination revealed dullness over right lung anteriorly and posteriorly, increased vocal fremitus, bronchial breath sounds, and irregular, weak heart action. Patient had very sharp and very severe pain in right side of chest at each inspiration. Palliative treatment was administered. Death occurred March 19, 1895.

Necropsy (three hours after death).—Rigor mortis was present; lateral and posterior post-mortem discoloration present. Heart and pericardium: Pericardium contained a small quantity of fluid. Heart weighed 354 grams and had normal valves. Lungs and pleuræ: Fibrinous inflammation had occurred in the left pleura. Left lung weighed 512 grams and was congested throughout. Fibrinous inflammation of right pleura had occurred, which was universally adherent to thoracic wall. Right lung weighed 1,750 grams, and had undergone red hepatization in its upper lobe and gray hepatization in the lower one. Liver weighed 2,820 grams, was enlarged, and had undergone fatty infiltration. Kidneys were congested.

P. C. K.

CASE 8.

W. S.; aged 35 years; nativity, Kentucky; admitted to United States Marine Hospital at Cincinnati, Ohio, January 25; died January 30, 1895.

History.—Patient complained of chills and fever (to which he had been subject for many years), weakness, soreness in chest, and dyspnœa. At the time of admission to hospital his temperature was 39.8° C. and his pulse was 120. Physical examination revealed dullness over base of right lung; frequent, shallow respiration and frequent heart beat. Patient received symptomatic treatment. He grew progressively worse and died January 30, 1895.

Necropsy (fifteen hours after death).—Rigor mortis was well marked; body was well developed; height of corpse was 1.6 meters. Heart and pericardium: There was slight hypertrophy of left ventricle, and the right ventricle contained a white clot. Pericardium contained a small quantity of straw-colored fluid and some fibrinous shreds. Lungs and pleuræ: Right pleura was hyperæmic; contained a small quantity of serous fluid, and was completely coated with fibrin. Right lung was in the condition of red hepatization; was covered with fibrin, and weighed 802.5 grams. Left pleura was intensely inflamed; contained a large quantity of serous fluid, and its visceral layer was thinly coated with fibrin. Left lung was crepitant and intensely congested, the congestion being more marked posteriorly. Spleen, liver, and kidneys were enlarged.

P. C. K.

CASE 9.

J. H.; aged 34 years; nativity, Missouri; admitted to the United States Marine Hospital, New Orleans, La., February 28; died March 4, 1895.

History.—Several days previous to his admission to hospital the patient had a chill, followed by fever and a cough. On admission to hospital he complained of pain beneath the right nipple, and the expectoration accompanying the cough was found to be rusty in color. There was, the same evening, a temperature of 40.8° C., a full bounding pulse of 100 beats per minute, and respiration quickened out of all proportion to temperature. Physical examination showed over the right lower lobe of the lungs, both in front and behind, dullness on percussion, increased vocal fremitus, bronchial voice, bronchial breathing, and a pleuritic friction sound. On the first examination the crepitant rale was detected. Five days after admission the patient died, having been in a state of exhaustion, with falling temperature and purulent expectoration, for the last twenty-four hours.

Necropsy (eighteen hours after death).—General nourishment, fair; rigor mortis marked; trachea and bronchi filled with muco-pus; left lung normal; right lung weighed 1,420 grams. The lower part of the right pleural cavity was obliterated by fibrinous adhesions. The lower lobe of the right lung was solidified. At the periphery the pneumonia had not advanced beyond the stage of red hepatization, while about the root of the lung there was gray hepatization and areas of purulent infiltration.

J. M. E.

CASE 10.

D. W.; aged 42 years; nativity, Virginia; admitted to the United States Marine Hospital, New Orleans, La., March 21; died March 25, 1895.

History.—The patient, a muscular negro roustabout, had suffered from quotidian intermittent for some time before applying for medical relief. Soon after admission to hospital he developed a lobar pneumonia, of which he died.

Necropsy (seventeen hours after death).—Rigor mortis marked; general nourishment, good. The pericardial sac was fatty and distended with serum. The heart, after opening, weighed 450 grams, and the walls of both ventricles were thickened and fatty. There was a catarrhal bronchitis, most marked on the left side, and a fibrinous pleurisy of the same side. The left lung weighed 1,900 grams, and the upper lobe was in the stage of gray hepatization. All the other viscera were normal in appearance except the spleen, which weighed 502 grams and was greatly congested and deeply pigmented.

J. M. E.

Case 11.

W. T. W ; negro; aged 28 years; nativity, Virginia; admitted to United States Marine Hospital at Cincinnati, Ohio, February 19; died February 28, 1895.

History.—Patient complained of chills and fever, pain in chest, cough, and headache. He had been ill for several days before his admission to hospital. Physical examination revealed frequent superficial respiration and a slight friction murmur on left side. Some symptoms of typhoid fever developed. There were pea-soup stools and delirium. Within a week after admission to hospital distinct pneumonic symptoms developed. There was dullness over greater part of left lung, and respiration was more superficial and frequent. Patient died suddenly February 28, 1895.

Necropsy (*sixteen hours after death*).—Rigor mortis was slight; body was well developed. Heart and pericardium: Pericardium contained 370 c. c. of sero-purulent fluid and was lined with fibrin; heart weighed 390 grams, had normal valves, was covered with fibrin, and contained some few white clots. Lungs and pleuræ: Left pleura was congested and slightly adherent to lung. Left lung weighed 1,950 grams; the upper lobe was congested and the lower lobe was between red and gray hepatization; parietal layer of right pleura was adherent. Right lung weighed 750 grams and was slightly congested throughout. Liver weighed 2,625 grams and was enlarged. All other organs examined were normal.

P. C. K.

Case 12.

J. M.; aged 39 years; nativity, Scotland; admitted to United States Marine Hospital, Chicago, Ill., December 26; died December 29, 1894.

History.—He was under treatment at this hospital in the spring of 1894 for remittent fever; no pulmonary disturbance present at that time. He had a cough for a month before admission, but was not seriously sick until December 20. On that date he had sharp pains, affecting various parts of the body, but not especially the chest, and he was dizzy on attempting to walk. No distinct chill. On admission he seemed anæmic and weak and stated he had had very little nourishment for six days.

Examination.—Heart's action normal, apex beat in normal position; dullness over upper lobe of right lung, anteriorly and posteriorly, more marked below third rib in front, less dull and more resonant at apex; resonance over lower lobe of right lung and over whole left lung. No change of dullness with change of position; bronchophony in region of dullness. An indistinct, fine, crackling rale was heard in right posterior region. On December 28 the upper lobe of right lung was flat, as much so at apex as lower. On December 29 no resonance could be obtained by percussion of right chest anteriorly, and posteriorly there was a very little at base of lung.

Necropsy.—Pericardial sac contained 100 c. c. of fluid. Heart weighed 330 grams; valves competent, cavities and walls of normal appearance, both ventricles filled with coagulated blood. Thoracic aorta normal. Weight of lungs, right 2,820 grams, left 690 grams; left pleural cavity practically obliterated by adhesions easily ruptured; left lung floated in water, was darker than normal, and contained much blood. Right pleural cavity contained many recent adhesions. Right lung sank in water; upper and middle lobes hepatized, grayish, very soft; lower lobe contained air and much blood. Liver normal in appearance, lobules distinct, weight 2,020 grams. Each kidney weighed 180 grams; general appearance of both normal. Spleen weighed 120 grams, small. Organs not noted were normal in appearance and not specially examined.

CASE 13.

L. L.; aged 50 years; nativity, Norway; admitted to United States Marine Hospital, Chicago, Ill., March 27; died March 30, 1895.

History.—General health, good. The night of March 22 he was awakened by sharp pains in left chest. There was also present slight cough, and probably a slight chill. Condition became continuously worse. On admission he was very feeble; temperature, 39.5° C.; pulse, 126; respiration, 42 (later increasing to 54); sputum profuse, viscid, mucous yellowish tinge; heart rapid and feeble; sounds indistinct; percussion flat over lower lobe of left lung; no change with position; no rales in left lung; bronchophony in lower lobe; right lung apparently very œdematous; abundant coarse mucous rales over whole lung; condition became progressively worse.

Necropsy.—Pericardial sac normal. Heart weighed 420 grams; valves appeared competent; a little calcification on one cusp of aortic valve; no atheroma in thoracic aorta. Weight of lungs—left, 1,880 grams; right, 1,700 grams; left pleural cavity, no fluid, a few weak adhesions; right pleural cavity, no fluid, a number of adhesions, especially with the upper lobe; upper lobe of left lung normal; lower lobe, red hepatization; upper lobe of right lung, red hepatization, except narrow outer margins; middle lobe partly hepatized; lower lobe everywhere crepitant, red, congested. Intestines apparently normal appearance, not opened. Liver of normal appearance; weight, 2,650 grams. Weight of kidneys—left, 200 grams; right, 220 grams; both large, lobulated; capsules not adherent; appearance, externally and on section, normal. Spleen weighed 200 grams; normal appearance.

S. D. B.
J. B. H.

CASE 14.

D. M.; aged 22 years; nativity, Prince Edward Island; admitted January 24, 1895, to United States Marine Hospital, Boston, Mass., suffering from influenza, complicated will double croupous pneumonia and fibrous pericarditis; also had stenosis of aortic valve; died February 3, 1895.

Necropsy (fifteen hours after death).—Rigor mortis marked; post-mortem discolorations of dependent parts; bloody froth oozing from the nose. Pericardial sac contained about 300 c. c. straw-colored fluid, with shreds of fibrin. The whole inside of sac and outer surface of heart were covered with fibrin, giving them the appearance of a piece of honeycombed tripe. Heart weighed 380 grams; valves all normal except aortic, which was stenosed from deposits; left ventricle thickened. Pleural cavity contained considerable fluid; left lung contained three lobes, two of which were consolidated by pneumonia. Two lower lobes of right lung in same condition; left lung covered with organized fibrin. Weight of lungs—left, 1,030 grams; right, 1,050 grams. Liver congested; weight, 2,580 grams; bled freely on section; gall bladder dilated. Kidneys, typical red congested kidney of pneumonia. Left kidney weighed 200 grams; right, 190 grams. Spleen soft and pulpy; weight, 180 grams.

W. P. M.

CASE 15.

Pericarditis.

H. N. (negro); aged 46 years; nativity, Mississippi; admitted to United States Marine Hospital at Cincinnati, Ohio, February 28; died March 4, 1895.

History.—Patient was admitted to hospital complaining of pain in right side of chest, cough, free expectoration, weakness, anorexia, and constipation. He had had a chill. Physical examination revealed dullness on left side of chest posteriorly, pure tubular breath sounds; less marked duliness on right side posteriorly, and hyperresonance on right side anteriorly. His temperature, pulse, and respiration, 39.6° C., 120, and 40 respectively. Treatment was without avail. His condition steadily grew worse. Death suddenly occurred March 4, 1895.

Necropsy (*fifteen hours after death*).—Rigor mortis was marked; body was wasted. Heart and pericardium: Pericardial sac contained 200 c. c. of purulent fluid. Heart weighed 435 grams; was covered with a thick layer of fibrin; had a greatly hypertrophied left ventricle, and had thickened aortic and mitral valves. Lungs: Left lung was adherent at base to thoracic wall and diaphragm; was covered with fibrin; was in a condition between red and gray hepatization, and weighed 1,860 grams. Right lung was somewhat adherent to thoracic wall at its base, was slightly congested throughout, and weighed 860 grams. All other organs examined were normal.

P. C. K.

CASE 16.

Pericarditis

G. F. (colored); aged 37 years; nativity, Mississippi; admitted to the United States Marine Hospital at Louisville, Ky., April 6; died April 7, 1895.

History.—Patient was so weak when admitted he could scarcely speak. He stated that he had been seized with a severe pain in left side of chest three days before and had been suffering with it constantly ever since; did not remember having a chill; coughed very little, but endeavored to suppress even that little because of pain. Expectoration very slight; suffered with shortness of breath since commencement of attack; could not lie on left side because of pain; moderate drinker; specific history eight years before; bowels constipated.

Physical examination.—Marked dyspnœa; tongue thickly coated and dry; breathing hurried and shallow; face pinched and countenance anxious; dullness over left lung. Respiratory murmur exaggerated over both lungs, but much more marked over lower half of left. Fine moist rales over all portions of left lung, and friction sound over lower half laterally. Heart sounds distinct, but the action is irregular and intermittent. Pulse, 96; respiration, 54; temperature, 38.2°, C. He was at once put on stimulants, and the following morning he appeared a trifle better. He continued in the same condition throughout the day, until toward evening, when his respiration became still more labored. He now grew worse rapidly, and died at 9.35 the same night.

Necropsy (*twelve hours after death*).—Body fairly well nourished; rigor mortis well marked; pericardium inflamed and distended, with a large amount of straw-colored fluid. Both sides of heart filled with ante and post mortem clots. Recent adhesions over left lung, and the surface of this lung partially covered with a fibrinous exudate. This lung throughout in a state of red and gray hepatization. Right lung congested. Liver large, fatty, and somewhat congested. Spleen normal in size, but extremely pulpy. Kidneys normal in appearance. The length of the appendix vermiformis was remarkable; by actual measurement it was 18 cm. long. It was closely bound down to the intestine, as though it had once been the seat of an inflammation.

H. T. G.

CASE 17.

Pericarditis.

C. E. W.; aged 28 years; nativity, Boston, Mass.; admitted to United States Marine Hospital, Boston, Mass., April 5; died April 11, 1895.

History.—When admitted patient stated that ten days previous and after exposure he had a chill, followed by profuse sweat and hard strangling cough. Pain in left axilla and severe pain in lower part of right side of thorax, increased by respiring deeply. On admission respiration was rapid and shallow; pulse rapid and weak; temperature, 40.2° C.; bowels open; appetite poor; sputa yellow, tinged with blood. Nourishment and stimulants were ordered.

April 6.—Temperature, 39.5° C.; pulse weak, rapid; dyspnœa excessive; friction sound over heart; pleurisy and catarrhal pneumonia in right side; chlorides in urine plentiful; sordes on teeth; cough tight; some sputa, blood-tinged. Stimulants and ice bags over chest were ordered.

April 7.—Aspirated pericardium and withdrew 20 c.c. of bloody fluid. Grew gradually weaker; temperature from 37.4° C. morning to 39.6° C. evening until death 2 a. m., April 11.

Necropsy (eight hours after death).—Body of emaciated white man; rigor mortis present; post-mortem lividity not marked, but present posteriorly. Thoracic cavity: Heart, 460 grams; pericardial sac and pleura adherent; dry pericarditis; left ventricle dilated and wall thickened; mitral valve thickened and incompetent; right ventricle slightly dilated, wall normal. Left lung weighed 1,050 grams; pleura closely adherent to parieties; tubercular cavities in upper lobe; fresh miliary tubercles in lung; pneumonic consolidation in lower lobe. Right lung weighed 1,030 grams; pleura normal; lower lobe, fresh miliary tubercles. Alimentary canal not opened; peritoneum normal. Liver weighed 2,150 grams; color pale; chronic congestion (nutmeg). Kidneys: Left weighed 215 grams; pyelo-nephrosis; right weighed 200 grams; apparently congested; spleen soft and weighing 180 grams. Microscropic examination showed presence in lungs of bacillus tuberculosis and streptococci.

W. P. M.

Case 18.

Pleurisy with effusion.

L. A. W.; aged 39 years; nativity, Maine; admitted to United States Marine Hospital, Chicago, Ill., February 7; died February 11, 1895.

History.—General health had been good. On February 3 he began to have cough, severe headache, pains all over body, dizziness, chilliness, and severe stabbing pain in left chest with inspiration or cough. On admission he was suffering greatly with dyspnœa and pain in left chest. Temperature 40.6° C., pulse 110, respiration 26. Sputum frothy, viscid, yellowish tinge, small in amount. Examination showed dullness, bronchophony, tubular respiration in lower lobe of left lung. No definite rales, merely a roughness of respiratory murmur in various places in left chest. On February 9 left lower lobe was altogether flat. Apex beat of heart was in normal position. No cardiac murmur. Heart action weak. No crepitant rales were heard at any time, but friction rubbing in several places in left chest. Urine, sp. gr. 1.019, acid, a small amount of albumen, chlorides diminished. Later, lungs became œdematous, filled on both sides (except consolidated lobe) with coarse mucous rales. The temperature diminished, and on morning of February 11 fell to 38.4° C. The pulse steadily increased in frequency to 146, and the respiration to 42. Face and extremities became cyanotic. Comatose for a short time before death.

Necropsy.—Body of well-nourished, muscular man. Pericardial sac was normal in appearance; contained no excess of fluid. Valves of heart competent; walls and cavities of good size and thickness. Weight of heart, 360 grams; left pleural cavity contained 300 c. c. greenish fluid, and general but weak adhesions; walls coated with coagulated fibrin. Lower lobe of left lung hepatized, red, contained no air, tissue very soft, breaking down under finger; sank in water; upper lobe crepitant, dark red, œdematous; weight of left lung 1,710 grams. Right pleural cavity contained many weak adhesions. Right lung normal, congested posteriorly. Peritoneum normal. Gastro-intestinal tract apparently normal, not opened. Liver normal, dark brown; weight, 2,430 grams. Kidneys rather pale, otherwise normal; capsules not adherent; weight of left 190 grams, of right 160 grams. Spleen weighed 310 grams, and presented usual appearance.

S. D. B.
J. B. H.

CASE 19.

Lung abscess.

C. H.; aged 48 years; nativity, Norway; admitted to the United States Marine Hospital, San Francisco, Cal., March 23, and died April 1, 1895.

History of illness of one week's duration previous to the patient's entering the hospital. Onset sudden, with a chill followed by fever, cough, and pain in the left side Temperature varied from 38° to 40° C.; pulse and respiration rapid.

Necropsy (twelve hours after death).—Heart: Antemortem clots and concentric hypertrophy of left ventricle; calcareous degeneration of walls of aorta. Right lung: Recent pleural adhesions; congestion of middle lobe and of base of lung. Left lung: Upper lobe healthy; lower lobe in the state of gray hepatization and undergoing purulent transformation; abscess at the base; the upper lobe alone floated on water. Other organs normal, save the liver, which weighed 2,320 grams, although appearing to be healthy.

LOBULAR PNEUMONIA.

CASE 1.

A. C.; aged 32 years; nativity, New York; admitted to marine ward, St. Vincent's Hospital, Portland, Oreg., August 5; died August 6, 1894.

History.—Had a chill ten days before admission on board his vessel, on leaving port. Felt fairly well the next four or five days, when he had chills and fever and pain extending from small of back down the thigh and leg of left side, continuing about twenty-four hours. He also had pain and soreness in his chest, with oppressed respiration as though he would smother Since then there has been no decided change in his condition, except that he felt somewhat better yesterday morning. Last night he did not rest well, and this morning about 9 a. m. had severe chill and fever, together with rapid and laborious breathing.

Physical examination.—Skin dry and flushed, lips blue, eyes dull, tongue white furred, bowels move daily. Pulse frequent, 106; respirations shallow and frequent; inspiration is short and imperfect, the expiration noisy and prolonged, Has a cough this morning, expectorating large masses of mucus in clear solution. Percussion note slightly exaggerated over left thorax, otherwise not apparently changed from the normal. Auscultation reveals harsh respiration, with moist rales over left thorax below and large bubbling rales over apex of right lung. Examination of left lung indicates infiltration or congestion, marked at the lateral and lower margins.

Treatment.—Calomel 0.23 gram, sodii bicarb. 0.66 gram; at once. Quinine sulph. 0.32 gram, antipyrine 0.2 gram; 4 times daily. Ammon. iodidi 2 grams, potassi citras, 10 grams, spts. ether. nitros. 5 c. c., syr. pruni virg. 50 c. c., aqua camph. q. s. 100 c. c.; 10 c. c. every 3 hours. Locally, repeated applications to chest of mustard poultices. Diet: Eggs, milk, and broths, administered at frequent intervals; brandy and whisky as indicated.

August 6.—Patient rested well yesterday afternoon, but was restless during the night; bowels moved twice. About 8 a. m. he was very weak, showing signs of collapse or cardiac failure. Respirations were rapid and shallow, 44 per minute; pulse 118; temperature normal. Percussion note hyperresonant, with slight dullness over left lower thorax. Fine and moist, large and small mucous rales were heard over entire chest, more marked over right apex and right lateral lobe. Patient was restless and wanted to get up. Quinine and antipyrine discontinued; also other medicine stopped. Ammon. carb. 0.33 gram, tinct. digitalis 0.5 c. c., whisky 40 c. c.; every 2 hours. Strychniæ sulph. 0.002 gram, hypodermically at once. Tincture iodine and mustard poultice to chest.

August 6.—Patient continued to grow worse; increased dyspnœa, cyanosis, profound coma; quiet death at 2 p. m.

Necropsy (*twenty-two hours after death*).—Height, 5 feet 7 inches; circumference at shoulder, 44 inches. Post-mortem lividity moderate; rigor mortis marked; general nourishment fair; pupils normal. Heart: Weight after opening, 390 grams; walls somewhat thickened and flabby; cavities dilated. It contained a small ante-mortem clot in right ventricle, and was distended with dark, coagulated blood; valves competent. Pericardial sac and fluid normal. Hyperæmia of the mucous membrane of the bronchi, and also of the bronchioles and air cells, accompanied by an abnormal mucoid secretion, blocking up the bronchioles and air cells. The walls of the bronchial tubes were thickened (hyperplasia), the caliber dilated, and the tubes stood out above the surface of the section. Left lung weighed 690 grams. The postero-inferior part of this lung was of a reddish-gray color and of firmer consistency than the remaining portion of the lung, which was of a yellowish-gray color. On section the tissue was smooth and poured out from the alveoli a gray opaque fluid containing very little air. Pleural cavity normal. There were patches of soft lymph on the pleura over the affected area, but no adhesions or roughening. Right lung weighed 1,050 grams. The lung tissue exhibited in varying degrees congestion, œdema, collapse, and pneumonic consolidation at its root. The tissue was of a brownish-red color throughout. On section a yellowish, creamy fluid escaped from the tubes, like pus escaping from a small abscess. Pleura: The membrane was irregularly thickened, with firm adhesions to the chest wall and lung, laterally and posteriorly. Other organs not examined.

J. B. S.

Case 2.

J. B. W.; aged 42 years; nativity, Iowa; admitted to the United States Marine Hospital, Memphis, Tenn., October 24; died October 26, 1894.

History.—The patient had been taken sick five days before the date of his admission to the hospital, and was very far gone. Respiration was so labored and the heart's action so rapid that death seemed imminent. The two lower lobes of the right lung were consolidated, and there was evidence of congestion and œdema in the remaining portions of both lungs. It was impossible to tell what the character of the pneumonia had been at the start, and a diagnosis of lobar pneumonia was made. Nitroglycerine and strychnine were used in large doses, and life was prolonged a little more than a day.

Necropsy (*nine hours after death*).—There was a great deal of lividity, and the face and neck were deeply cyanosed. This was probably ante-mortem, and was due to the mode of death being failure of respiration. Rigor mortis was present. The general nourishment was fair. The pupils were unequal in size, the right being normal and the left dilated. The heart weighed 301 grams. It contained very little blood, and no firm clots. All the blood was very dark in color. The pericardial sac contained no serum. Both parietal and visceral pericardium were covered with a rough, dry deposit. The valves of the heart were all competent. The wall of the left ventricle was rather thick. The left lung weighed 925 grams; it was adherent to the chest wall about the apex; it was congested and very œdematous, pitting on pressure externally and pouring out froth from the bronchus. In the upper lobe were two or three consolidated patches of considerable size. The lung floated in water. The right lung weighed 1,858 grams. Its pleural cavity was obliterated with adhesions. The lower lobe was consolidated and in a state of purulent infiltration. The middle lobe, which was only partly defined from the lower, and the lower part of the upper lobe were consolidated, but in a less advanced state of disease than the first described. The apex of the lung was congested and œdematous, and it alone floated in water, the rest of the lung sinking. The peritoneal cavity contained a little yellow serum. The large intestine was fully expanded from cæcum to hepatic flexure, thence dwindled in a short space to the size of a man's finger, and was of that small size through the remainder of its length to the anus. Although the caliber was so small it was easily expanded with the finger, its mucous membrane was free from ulcers, and was healthy in appearance. The liver was seamed and indented on its front surface. The general color of the surface was yellowish, the yellow markings resembling in form a bunch of worms or yarn. The cut surface of the tissue had the same appearance, only more clearly marked. The acini seemed to be obliterated. The liver weighed 2,230 grams. The left kidney weighed 237 grams, the right one 213 grams; both were congested.

TUBERCULAR ULCERATION OF INTESTINES, WITH PERITONITIS.

B. M.; aged 21 years; nativity, Nova Scotia; admitted to United States Marine Hospital at San Francisco, Cal., November 8; died December 9, 1894, at 10.15 a. m.

History.—On admittance complained of pain in abdomen, most severe in umbilical region. He had had occasional diarrhœa and spells of pain in abdomen for previous four months. Physical examination showed a diffuse swelling in the umbilical, hypogastric, and right and left inguinal regions. The belly muscles were tense, and slight pressure caused pain. Increased peristalsis was a feature throughout. The diarrhœa was lienteric in character, and not attended with tenesmus. Temperature ranged between 37° C. and 39° C. Mental faculties were clear until two days before death. Treatment was unavailing, except to relieve pain.

Necropsy (twenty-four hours after death).—Rigor mortis present; body emaciated; pericardium and heart normal; left pleural surfaces covered with tubercles; lung healthy, except for hypostatic congestion; right pleura healthy; right lung in congestive stage of pneumonia. Peritoneal layers were thickened and inflamed, the contiguous reflections being generally adherent. The liver was adherent to the diaphragm, stomach, colon, and spleen, and the intestinal loops were inextricably matted together by inflammatory adhesions. Between the intestinal coils and interspaces of neighboring organs foul-smelling pus, mixed with fecal matter, was present. Stomach was inflamed and congested. The lower half of jejunum and upper half of ileum showed patches of inflammatory thickening, with irregular ulcers in various stages of tissue destruction. Some were shallow, involving only the mucous coat; others had destroyed the muscularis; and some, in addition, the alveolar and muscular coats; a few were cicatrizing, while a large number had apparently fused and ulcerated through all the coats, establishing a large and free communication between the ileum and the general peritoneal cavity. The mesenteric glands were enlarged and caseous. The entire portal system of veins showed intense engorgement. The liver, spleen, and kidneys were each slightly enlarged, and showed amyloid changes. Pancreas normal.

PERITONITIS.

CASE 1.

J. O'B.; aged 27 years; nativity, Pennsylvania; admitted to United States Marine Hospital, Cairo, Ill., November 17; died November 18, 1894.

History.—Patient had stricture of the urethra for five years previous to admission, which caused retention of urine three or four times during that period, but had otherwise been in robust health. Eleven days before admission, while assisting to unload a barge, pushing a wheelbarrow filled with rock, he fell, the wheelbarrow and contents falling upon his pelvis as he lay on his back upon the ground. Medical attention was had promptly, and failing to get an instrument, per urethram, into the bladder to relieve the retention of urine immediately following the accident, a trocar and canula was introduced above the pubes from time to time until he could be brought to this hospital. On admission patient was apparently moribund, only speaking to complain of intense pain in abdomen. An attempt was at once made to pass the catheter through the urethra, but it was found impracticable on account of an impermeable stricture about 10 cm. from the meatus. The bladder was then aspirated just above the pubes and 750 c. c. of bloody, ammoniacal urine withdrawn, affording great relief to the patient. On examination the abdomen was found tympanitic with several punctures between umbilicus and pubes in median line, and ecchymotic discolorations at inferior portion. Spleen enlarged. At 2 p. m., under A. C. E. mixture, cautiously administered and frequently suspended for resort to stimulation, a filiform bougie was with difficulty passed to the bladder. Further operative procedure was abandoned on account of the alarming cyanosis of the patient. He was placed in bed, and stimulation continued. On November 18 patient's condition extremely grave. Pupils unequally dilated, involuntary discharge of liquid fæces, pulse rapid and feeble, moaned constantly. Aspirated bladder, obtaining 150 c. c. of bloody, ammoniacal urine. At 2 p. m., the distal end of the staff of a Maisonneuve's urethrotome having been cut off, allowing the blade to protrude 0.5 cm., the stricture was tunneled therewith, a catheter introduced, and the bladder washed out with warm Thiersch's solution. The patient immediately rallied from his lethargic condition, and drank freely of milk punch. Stupor, deepening into coma, rapidly supervened, and he died at 7.30 p. m., November 18, 1894.

Necropsy (fifteen hours after death).—Body that of a fairly nourished, muscular young white man. Post-mortem lividity and rigor mortis well marked. Right lung firmly adherent to chest wall, and lower lobe collapsed. Left lung and pleura normal. Heart fatty, soft, friable, filled with ante-mortem clots, extending into the larger vessels; valves normal; weight, 312 grams. Liver weighed 2,195 grams. Spleen dark, deeply congested; weight, 745 grams. Both kidneys enlarged and acutely inflamed. Abdomen contained a considerable quantity of bloody exudate; abdominal viscera covered with a fibrinous exudate, agglutinating them firmly in many places. Bladder distended, and its walls 2 cm. in thickness; exterior rough and shaggy from deposit of fibrin, and internal surface deeply congested. All power of contraction and capability of retraction of the bladder had evidently long been lost.

CASE 2.

E. P. T.; aged 21 years; nativity, Rhode Island; admitted to United States Marine Hospital, New Orleans, La., June 25; died June 28, 1895.

History.—Several days before his admission to hospital the patient was taken with vomiting, colic, and diarrhœa. The vomiting was of a bilious character, and the stools were watery and fecal, but contained no blood. A medical practitioner who attended the patient prior to his admission to hospital reported that soon after the diarrhœa began the abdomen became tympanitic; there was suppression of abdominal respiration and tenderness over the cæcum. When the patient was brought into the ward he was suffering from a general peritonitis. There appeared to be rather more tenderness over the cæcum than elsewhere, but the inflammation was not distinctly localized. There was a temperature of 38.8° C., a quickened high-tension pulse, considerable gaseous distension of the abdomen, and the abdomen moved but little in respiration. Vomiting became almost continuous, and with the onset of delirium the pulse became progressively weaker, and in this condition the patient died.

Necropsy (seven hours after death).—Thoracic viscera normal; on opening the abdomen the intestine was found to be distended with gas. The peritoneum covering the small and large intestine was lusterless, gummy, and showed a network of hyperæmic capillaries. The omentum was glued to the underlying intestine. The large intestine, especially the sigmoid flexure, was gangrenous in places. The pelvis contained about 250 c. c. of sero-pus. There was a collection of pus of evident long standing in the neighborhood of the cæcum, and the vermiform appendix was chronically inflamed, thickened, bathed in pus, and contained several old concretions, varying from the size of a date stone to that of a cherry pit.

J. M. E.

DIARRHŒA.

P. R.; aged 56 years; nativity, Italy; admitted to the United States Marine Hospital, New Orleans, La., August 30; died November 16, 1894.

History.—On his admission to hospital the patient stated that he had had a diarrhœa of many months' duration. He had lost flesh, strength, and appetite and was anæmic. There was some tenderness over the abdomen, but the movements of the bowels were unaccompanied by pain. During the whole course of his illness there were no other signs or symptoms. With occasional intervals of improvement, the patient continued to lose flesh, the stools were too frequent and too liquid, and death finally took place from exhaustion.

Necropsy (five hours after death).—Body much emaciated; rigor mortis prominent; post-mortem lividity not marked; pupils dilated. The viscera, with the exception of the lungs and the intestines, were found in a normal condition. The left lung weighed 600 grams, the right lung 1,010 grams, and both, especially the right, were the seat of œdema and hypostatic congestion, especially marked in the posterior part. The small and large intestines presented the lesions of a catarrhal inflammation and the mesenteric glands were enlarged and hardened.

DYSENTERY.

Case 1.

Appendicitis.

Y. O.; aged 26 years; nativity, Japan; was admitted to United States Marine Hospital, San Francisco, Cal., September 28; died October 4, 1894.

History.—For two weeks the patient had been suffering from headache, a feeling of lassitude and inaptitude for work, and diarrhœa. On admission he had considerable dullness of intellect. His tongue was dry and coated, his temperature being 39° C. Mental confusion soon followed, and the patient attempted to wander about the hospital at night. He had from four to six passages daily, usually bloody. A microscopical examination of the stools showed blood corpuscles and numerous crystals of triple phosphates. The patient's temperature wave was not characteristic of enteric fever, probably owing to the quinine which he was taking. It remained regular throughout, rising from 38° to 39° C. every evening. At about 10.30 on the evening of October 3 the patient suddenly complained of severe pain in the abdomen, soon followed by collapse and death twelve hours later.

Necropsy (twenty-five hours after death).—Rigor mortis was present; abdomen greatly distended and evidences of acute peritonitis. Numerous irregularly ovoid clean-cut ulcers were seen throughout the last few feet of the ileum, opposite the mesenteric attachment, but chiefly in the neighborhood of the ileocæcal valve. In the latter region there was a small perforation at the bottom of a clean thin-walled ulcer. The vermiform appendix was inflamed and filled with pus. Throughout the colon there was a large number of ulcers both superficial and deep, but nonperforating. Spleen slightly enlarged and soft; kidneys congested; liver apparently normal; stomach distended with gas, and containing one ascaris lumbricoides, while another was protruding from the mouth; heart sound; lungs in a state of hypostatic congestion.

Case 2.

A. A.; aged 45 years; nativity, Italy; admitted to the United States Marine Hospital, New Orleans, La., November 30; died December 2, 1894.

History.—The patient was admitted to hospital in an exhausted condition, having had for several days colic, abdominal pain, numerous small, bloody, mucous stools, a sensation of distension of the rectum, and an almost constant desire to defecate. This condition, with increasing prostration, continued until his death, which was preceded by several fainting spells, a pinched face, abdominal tenderness, and tympanites.

Necropsy (nine hours after death).—Post-mortem lividity not marked; rigor mortis present; general nourishment poor. Weight of lungs—right, 730 grams; left, 660 grams. There was an interstitial pneumonia, with emphysema, along the anterior borders of the lungs and an œdema of the posterior border of the right lung. The peritoneum was lusterless, sticky, and congested, and its cavity contained a quantity of seropurulent fluid, mixed in the right iliac fossa with fecal matter. The large intestine, throughout its whole extent, was thickened and congested. There were patches of gangrene present, and near the cæcum was a perforation from which there was an escape of fæces. The liver was normal.

ENTERITIS—HYDATID CYST.

C. N.; aged 36 years; nativity, England; admitted to the United States Marine Hospital, San Francisco, Cal., June 3; died June 9, 1895.

History.—Patient had been complaining of a severe diarrhœa for three weeks before his entrance to the hospital. The discharges were frequent but scanty, and he had noticed blood on several occasions. No fever or tenesmus was present, but pain in the abdomen was perceptible. The pulse was moderately rapid and compressible, tongue coated, the skin cold and clammy. The discharges became more frequent and gaseous inflation of the abdomen more noticeable. On the evening of the 5th the temperature was slightly elevated, tenderness extended all over the abdomen, and stools became large and watery. On the evening of the 7th of June the pain in the abdomen became more intense, accompanied by much inflation of gas On the 8th the temperature was again elevated, stools became more frequent, tongue dry, and skin cold and clammy. On June 9 the tympanites became enormous and vomiting frequent. Died at 4.20 p. m.

Necropsy (nineteen hours after death).—Body was well nourished. On opening the thorax the right pleura was found to be adherent to the whole side of the chest wall and the right lung somewhat congested. The left pleura was adherent to the posterior thoracic wall, and left lung also congested. The pericardium and heart were normal. On opening the abdomen the peritoneum was found congested and plastic adhesions forming. The large intestines were ulcerated and congested. The cæcum was very badly ulcerated, but the appendix vermiformis was normal. The spleen was somewhat softer than usual. The kidneys were normal. Attached to the anterior and under surface of the liver a smooth, white, tense tumor, with the capacity of about 200 c. c., was found. On section of the tumor it was proven to be a hydatid cyst, the capsule being of fibrous consistency. Two small abscesses were found in the liver, the liver substance itself being paler than usual.

C. H. G.
J. G

PERFORATING ULCER OF RECTUM—PERITONITIS.

D. H. (colored); aged 46 years; nativity, Arkansas; admitted to the United States Marine Hospital, St. Louis, Mo., March 7; disease, stricture of rectum, rupture of bowel; died March 18, 1895.

On March 10 an internal proctotomy was performed under anesthesia, and the stricture opened wide enough to admit two fingers and the largest size rectal bougie. The parts were well washed with weak bichloride solution and sterilized water, and the rectum packed with iodoform gauze; several external piles were also ligated and removed. The packing was removed the next morning and the bowel thoroughly washed. A dose of ol. ricini was given on the 12th, which was followed by a copious and easy stool. Bougie passed and bowel washed on this date. He had no pain, and was allowed to sit up. On 14th passed bougie; case doing well. On the evening of the 16th he complained of some pain in the abdomen, and his temperature registered 38.2 C, his pulse was 90, and his condition was not good. On the morning of the 17th it was evident that he had peritonitis, and an examination of the rectum by the digital method showed a small rupture at a thinned portion of the bowel. A laparotomy was at once performed, with the object of washing out the peritoneal cavity and closing the rent in the tube. When the rupture was reached through the abdominal incision it was found impossible to close it by suture, as it was placed too deeply in the pelvis, and the rectum could not be displaced upward. The peritoneal cavity was therefore well flushed with warm sterilized water, a drainage tube passed through the opening into the rectum, and the latter packed about with iodoform gauze. The patient bore the anesthetic badly. The rupture was too small to have been made by the large rectal bougie, and besides no resistance was encountered in passing it. The temperature after the operation fell to normal, but there was an evening rise to 38° C, with a pulse of 102. He was bathed in cold perspiration, apparently approaching a condition of collapse, and it was evident the whole peritoneum was involved. His death took place at 9.30 a. m. March 18, 1895.

Necropsy (*six hours after death*).—Rigor mortis present; abdominal wound made March 17 partly united; general suppurative peritonitis existed; lower part of the cavity well drained, and but little fluid in the belly. A rupture of the rectum was found at the upper edge of the stricture; it was irregular in outline and admitted the forefinger, and the wall of the bowel at this point was as thin as blotting paper, while the rest of the bowel was much thickened and infiltrated. A circular patch of ulceration 1½ inches long in the axis of the gut extended completely around the bowel from the point of rupture. The mucous membrane in this patch was entirely destroyed down to the muscular coat of the gut. An old fistula was found leading from within the sphincter to the perineum, where it had a double opening. It was impossible to have sutured the rent in rectum during life by a median incision in the abdomen, as it could not be done after death with an incision extending from the sternum to the pubes. Chest: Pleural adhesions on right side, none on left. Cretaceous particles in upper part of lower lobe of left lung; spot of hypostatic congestion in lower lobe of right lung. Heart valves normal, except mitral, which is slightly roughened. Patch of beginning atheroma in wall of ascending aorta. Cortical structure of kidneys very pale; all other organs normal. Weight of viscera: Left lung, 320 grams; right lung, 385; liver, 2,085; spleen, 230; pancreas, 105; left kidney, 175; right kidney, 165.

GANGRENE OF INTESTINES.

H. H.; aged 37 years; nativity, Norway; admitted to United States Marine Hospital, Galveston, Texas, October 11; died December 23, 1894.

History.—The patient applied for treatment suffering from a strangulated, oblique, inguinal hernia of twelve hours' standing. Tumor large, tense, and very painful. An anesthetic was administered, the tumor cut down upon, and the constriction existing at the internal ring was divided. The bowel was found very dark, but the peritoneal covering was shining and otherwise healthy. Adhesions existed all over the sac between the peritoneum and omentum; these were broken up and the bowel put back into the peritoneal cavity. The omentum was so dark that it was thought best to cut away a large portion of it. The peritoneal sac was dissected out, ligated, and cut away at the internal ring, and the wound closed after the manner of Macewen.

October 12.—Temperature and pulse normal; some tympanites and soreness; appetite poor; slept well; enema given to remove flatus. The wound apparently healed by first intention, and all sutures were removed by October 24. He was troubled from constipation, but was comfortable, and condition seemed to improve.

October 31.—A truss, with soft pad, was applied and patient allowed to walk about.

November 7.—A small stitch abscess formed in groin, which was opened, and November 17 commenced to discharge fecal matter. The patient was occasionally troubled with abdominal "cramps," during which matter (usually a milky fluid) was projected from fistula with considerable force. The general health was good, the patient felt well, and gained considerably in weight. On December 22, however, he suffered from violent cramps and purging; the discharged matter resembled rice-water. A condition of collapse rapidly supervened, and death followed about twelve hours from beginning of attack.

Necropsy (nine hours after death).—Rigor mortis well marked; abdominal walls bulging inward and peritoneal cavity dry. The lower portion of ileum was situated deep down in the lowest portion of the abdominal cavity and was filled with a straw-colored fluid; it was pulled over strongly toward the site of the fecal fistula by an adhesion that had formed there. At the site of the fistula was found an adherent mass, consisting of two loops of small intestines attached to the abdominal wall and to the large gut at a point above the sigmoid flexure of the colon. From without inward this mass consisted of: (1), The upper part of sigmoid flexure of colon, into which it opened; (2), a loop of the ileum in its lower part, about 8 to 10 inches distant from ileocæcal valve; (3), a loop of small intestines, the jejunum, adherent at a distance of a few inches from the lower end of duodenum. There was but a small opening from the latter into the large gut, but the opening from the ileum was larger, and the whole mass at the point of adhesion was black and gangrenous, emitting a fetid odor. A small fistulous opening was found at the point of adhesion of the three guts where the gangrene was most intensified. This fistulous opening established a communication between the bowel and the inside of abdominal cavity. In spite of this fact, no fluid was detected in the abdominal cavity while the ileocæcal fold below the fistula was distended with at least a pound or two of fluid matter. The parietal peritoneum was thick and shining and at points showed deeply engorged veins. The same may be said of the mesentery and mesocolon. The other organs appeared normal.

ABSCESS OF LIVER.

Case 1.

P. O.; aged 43 years; nativity, Kentucky; admitted to United States Marine Hospital, Cairo, Ill., September 19; died September 29, 1894.

History.—Patient had been in good health for twenty years, though an habitual drunkard since early youth. His present illness began ten days before admission with a chill of moderate severity, followed by fever. On admission complained of severe pain in direction of liver, increased by deep inspiration, or any movement of the body. Could not lie on affected side, but rested easily on back or left side. Appetite poor; bowels constipated; says he had not slept for four nights.

Physical examination.—Pulse 106; respiration 30; superficial; temperature 39° C.; body well nourished; tongue covered with a pasty yellow coat. Diminished expansion of chest on right side. Dullness on percussion over lower lobe of right lung, especially noticeable in axillary lines. Respiratory murmur weakened throughout right lung and absent over the greater part of the lower lobe. Liver enlarged, extending about 5 cm. below the margin of the costal cartilages. Urine contained a small quantity of albumen.

September 21.—A very tender spot was detected between the ninth and tenth ribs, close to their costal cartilages, and later some œdema at same spot.

September 25.—The indications pointing strongly to abscess, an aspirator needle was introduced at point above noted, and a small quantity of bloody pus withdrawn. The needle remaining stationary during inspiration, it was decided to operate the following day, which was done after the strictest antiseptic methods. An incision 10 cm. in length was made between the ninth and tenth ribs, the muscular tissue divided on the director, and the peritoneum being found adherent, a small (3 cm.)

opening gave vent to 100 c.c. of bloody pus. A few fibrous bands between the roof and floor of the pus cavity were broken with the finger and the cavity washed out with boiled filtered water at 38° C. A rubber drainage tube inserted, a stitch taken in the wound, and a large, moist, antiseptic dressing applied. Temperature, three hours after operation, 37.4° C., the lowest since admission; tympanitis, which had existed since admission, had considerably diminished. Patient expressed himself as very comfortable, asked for and drank a milk punch.

September 27.—Morning temperature, 38.8° C.; pulse 106; respiration 28, condition "easy." Dressings found saturated with seropurulent discharge, and renewed. Evening temperature 37.°2 C.; pulse 100; respiration 30. Passed a poor night, and on morning of 28th evidences of peritonitis appeared, but without pain. Patient from this point failed so rapidly, that further operative interference was deemed impracticable. He died at 2 a. m. September 29, 1894.

Necropsy (eight hours after death).—Body that of a well-developed middle-aged white man. Rigor mortis marked. Diaphragmatic portion of right pleura covered with a fibrinous exudate and lung bound with a few slight adhesions. Hypostatic congestion noticed in both lungs, otherwise normal. Heart normal in size, soft, friable; right ventricle containing small antemortem clot. Liver enlarged; weight, 3,060 grams; pale yellow, very soft; right lobe contained a pus cavity of 500 c. c. capacity which had been evacuated as above noted, and one nearer the diaphragm of about 1,000 c. c. capacity, which had opened spontaneously and doubtless caused the peritonitis. On sections several other smaller abscesses were found in each lobe. Kidneys, swollen and pale; right weighed 265 grams, containing two cysts, each 1 cm. in diameter; left weighed 235 grams. Spleen tough; contained numerous globular-gelatinous bodies, each about 0.75 cm. in diameter; weight, 435 grams.

CASE 2.

Multiple.

H. M.; aged 50 years; nativity, Germany; admitted to United States Marine Hospital, St. Louis, Mo., May 28; died May 30, 1895.

Physical examination showed tympanitis, tenderness over the cæcum on pressure over the colon, marked at the hepatic flexure, and over the entire surface of the liver, which was evidently much enlarged. There was no tenderness on pressure over the general surface of the abdomen. There was slight dullness on percussion over the base of the right lung, and loud, sonorous rhonchi were heard over both lungs. The aspirating needle was introduced into the general peritoneal cavity through the linea alba, into the liver and lower part of the right pleural cavity, but did not reveal the presence of pus or serum in the peritoneal cavity or liver. About 10 c. c. of serum was obtained from the right pleural cavity. The stools were thin, of an ochre color; contained shreds of mucus and minute sloughs, and the patient stated that they never had been bloody. The case was considered one of multiple suppurative hepatitis, the source of infection being, in all probability, the colon. At 12 m. on the 29th the temperature was 38.3° C., the pulse 110, the respirations rapid, and his condition somnolent. He grew rapidly worse, and died at 7 a. m., May 30, 1895.

Necropsy (three hours after death).—Post-mortem lividity; rigor mortis; body large and well nourished; abdomen much distended; brain not examined. Chest: Extensive pleural adhesions on both sides; slight serous effusion in right pleural cavity; lungs normal and crepitant throughout. Heart normal and valves competent; much fat on external surface. Abdomen: About 50 c. c. of serum found in lower part of cavity. Liver of enormous size; partly fills the abdomen, and extends high up in the right pleural cavity; the surface is nodular, and the parenchyma is studded with multiple abscesses varying in size from a pea to that of a small orange; some of these had pointed on the external surface and discharged their contents into a pocket formed by adherent omentum on the under surface of the right lobe; the extreme left lobe was the only portion of the liver exempt from the change; the gall bladder was empty, contracted, and its walls much thickened; the cystic and common ducts were patulous. The stomach was normal; in the small intestine the valvulæ conniventes were swollen, but no other pathological change was noted; Peyer's patches were not enlarged; the appendix vermiformis was healthy; beginning at the lower portion of the cæcum and extending to the sigmoid flexure, the large bowel was found the seat of multiple ulcers of various shapes, sizes, and degrees of advancement, from the simple point of ulceration in the swollen mucous membrane to the deep ulcer extending to the peritoneal coat; one large ulcer in the lower part of the cæcum, 3.75 by 2.5 cm., had almost perforated the peritoneal coat, but had been repaired by a large pad of omentum having been sealed to the bowel by adhesion, and the floor of the ulcer thus supported; one similar in size and characteristics was found in the hepatic flexure of the colon at a point where much pain was complained of during life. The bowel was adherent to the under surface of the liver, and the ulcer was on the point of perforation. The pancreas, spleen, suprarenal capsules, and kidneys were normal. The bladder was very small; walls much thickened and contracted. The presence of the amœba coli could not be demonstrated in this case. Weight of viscera: Left lung 460 grams, right 460, heart 340, liver 3,300. spleen 230, pancreas 130, left kidney 330, right 320.

CIRRHOSIS OF LIVER.

A. P., aged 49 years; nativity, Pennsylvania; admitted to the United States Marine Hospital, New Orleans, La., November 11; died November 23, 1894.

History.—The patient when admitted to hospital had marked ascites and dropsy of the lower extremities and genitalia. Respiration was greatly compromised and there was distension of the superficial abdominal veins. Paracentesis abdominalis was immediately performed and 15,000 c. c. of liquid removed. The patient had been tapped twice before. He had been a hard drinker since early manhood and for years had suffered from gastro-intestinal catarrh. Some relief followed the operation, but the previous condition soon obtained again, and to the other symptoms was added vomiting of blood. The patient died comatose.

Necropsy (nineteen hours after death).—Rigor mortis marked; deep post-mortem lividity. The heart was smaller than normal, weighing only 240 grams, but was otherwise normal, and the pericardial sac contained considerable fluid. The lungs were congested and œdematous, the left weighing 800 grams and the right 1,000 grams, and there were adhesions between the costal and pulmonary pleura, the pleural cavity on the left side being almost wholly obliterated. The gastro-intestinal tract showed throughout the lesions of catarrhal inflammation. The liver weighed 1,600 grams; its surface was irregularly divided into pathological lobes and showed "hobnails;" its form was distorted, its texture tough, and on section its consistence was found to be leathery. The kidneys were congested, the left weighing 220 grams, the right 206 grams, and their capsules were adherent. The penis bore scars of old syphilitic lesions. The spleen, weighing 360 grams, was soft and friable, and the peritoneum surrounding it was adherent to the surrounding parts. The peritoneal cavity contained a large quantity of liquid.

CHOLELITHIASIS WITH HYPERTROPHIC CIRRHOSIS OF LIVER.

A. J.; aged 45 years; nativity, West Indies; admitted to United States Marine Hospital at San Francisco, Cal., December 1; died December 21, 1894.

History.—On admittance patient complained of pain across upper part of abdomen, which became worse during occurrence of irregularly intermittent ague-like paroxysms. He had been jaundiced for three days; had had digestive disturbances and occasional attacks of pain for three years. Since appearance of icterus he had frequent vomiting of emerald-green liquid material. Stools were ashen-gray in color and offensive to smell. The icterus, while never entirely subsiding, was less and greater at different times under treatment. Death occurred in one of the paroxysms.

Necropsy (twenty-four hours after death).—Skin and sclera jaundiced; body well nourished; heart had some fatty deposit on surface; other thoracic viscera normal. The liver weighed 3,450 grams; capsule much thickened; on section tissue was tough and resistant; section was light brown in color, striated with white fibrous tissue, especially abundant in the vicinity of the larger bile ducts; the liver cells presented no macroscopic and very little microscopic obliteration from overgrowth of connective tissue, with the exception of limited patches; the enlargement and increased weight of the organ was due to the new-formed cirrhotic tissue; the larger and intermediate gall ducts throughout the liver substance contained numerous dark, greenish, amorphous calculi, varying in size from a mustard seed to a .44-caliber bullet; the lumen of the cystic duct, which was nearly obliterated by inflammatory tissue, was obstructed by two of the larger gall stones; the gall bladder was normal in size and filled with a thin, flocculent, mucous secretion, besides containing seven of the larger-sized gall stones. The spleen was pultaceous in consistency and enlarged, weighing 590 grams. Kidneys were flabby and elongated, with thinned cortical portions. Other organs not examined.

INGUINAL HERNIA.

M. F.; aged 21 years; nativity, Germany; admitted to United States Marine Hospital, Chicago, Ill., December 26, 1894; died January 9, 1895.

History.—Patient had had a small right inguinal hernia for eighteen months; mode of origin unknown. No special trouble was experienced, but the attempt to wear a truss produced so much discomfort that he requested an operation. He was a small man, in fair physical condition, but rather anæmic from an attack of remittent fever shortly before, for which he was treated at this hospital. The hernia was diagnosed as omental. Heart and urine were examined and found normal. The bowels were emptied by a cathartic the day before operation. On January 6, 11 a. m., ether was administered without any difficulty. The right groin and vicinity had been shaved and cleaned previously; a final cleansing was given; towels wrung out of bichloride solution covered the surrounding parts. Instruments had been sterilized by boiling half an hour. The catgut used had been boiled and chromicized and left immersed in 95 per cent alcohol. Silk worm gut was also kept immersed in 95 per cent alcohol. An incision 6 cm. long was made over hernial protrusion in the direction of the inguinal canal. The sac was quickly found. Hemorrhage was controlled by use of three hæmostatic forceps. Sac was then opened and found to contain omentum. Omentum was drawn out, transfixed, and tied with large catgut, excised, stump touched with 95 per cent carbolic acid and pushed back into abdominal cavity. The sac was then dissected away from surrounding tissues, largely by the fingers, and the cord was separated. The sac was then gently drawn out from ring by the method of Lucas-Championiere, transfixed at its base and tied with catgut, and the stump dropped into inguinal canal. With Wood's hernia needle a large catgut thread was passed through inguinal ring above and below. The ligature was drawn tight and tied. A buried catgut suture was then passed around margin of incision, drawn tight, and tied. The integument was approximated with interrupted silkworm gut sutures and sealed with iodoform-collodion and gauze. A pad of cotton and a spica were lastly adjusted. He recovered from the ether and complained at once of the pressure of the dressings. These were carefully examined and found to be well adjusted. In the afternoon, after ingestion of some milk, he suffered from sharp pain in abdomen and showed symptoms of shock. He was made more comfortable by a hypodermic injection of morphine (0.01 gram). Late in the afternoon he vomited. During the evening and night he received milk with lime water in small quantity at short intervals. There was little sleep during the night.

January 7.—Patient still complains of pain in abdomen and insists the dressings are too tight. The bandages were cut and fresh ones applied loosely, without removing any part of the dressings. Turpentine stupes were applied over epigastrium, and the pain seemed to be somewhat relieved. Nourishment to-day consisted of milk and lime water by the mouth, but he vomited several times. Toward night a hypodermic injection of morphine (0.01 gram) was administered to relieve his pain, and later in the evening he received 1 gram sulphonal, but he slept none until after 2 a. m. Temperature, morning and evening, 38° C.; pulse, 108.

January 8.—Patient continues to complain of severe pain in abdomen. At the outset he described the pain as located at the site of the incision, later it seemed to be higher and diffused over the right half of abdomen. The patient had an anxious look, seemed very weak; face and lips pallid; hands and feet cold; pulse rapid and weak; respiration hurried and shallow. Temperature, morning, 37° C.; pulse, 98. Magnesium sulphate (4 grams) every two hours was ordered until bowels should move, also an enema of soap and water. No food was allowed by the mouth, but nutrient enemata of beef tea and milk punch were substituted. Cracked ice was allowed to try to relieve the intense thirst. Hot-water bottles were used constantly. Mustard leaves were applied to the abdomen. The patient retained the first dose of magnesium sulphate, but vomited the second. The vomitus was of green color and offensive odor. The soap and water enema was retained a short time, then was passed, but without admixture of fæces. The nutrient enemata were retained fairly well, and were repeated at intervals of three hours. The vomiting continued through the day. At night he was in a condition of extreme prostration; pulse rapid and feeble, 150 a minute; respirations fast and shallow, 50 a minute; temperature 38.4° C.; 60 c. c. of castor oil were injected into rectum and followed by a quart of soap and warm water. This was passed later, but no fæces. A cold-water coil was applied over the abdomen at night. Whisky was administered hypodermically at short intervals. He was allowed a little milk and lime water by the mouth, but this was at once rejected. The interne remained with the patient all night, administering hypodermics of whisky, according to the condition of the pulse, and nutrient enemata. Patient died at 4 a. m., January 9.

Necropsy (five hours after death).—Rigor mortis present; general nourishment good; pericardial sac and heart normal; weight of heart, 250 grams. Left pleural cavity contained general adhesions, easily torn; right, no adhesions. Both lungs normal, some hypostatic congestion; left lung weighed 410 grams, right 460 grams. The abdominal cavity contained considerable dark bloody fluid and some free clots of blood, especially in pelvis and on the right side. Omentum and intestines were bound together with fresh adhesions. Omentum was drawn over to right side and was firmly adherent to parietal peritoneum from internal inguinal ring upward. Cat gut was intact on omental stump, the latter, however, covered with blood clot. Intestines were bound together by weak adhesions, and all portions on the right side, especially above and below ileocæcal valve, were dark colored and covered with adherent clots. No constriction was found at any portion of intestinal canal, and appearance within was normal. The little finger was easily pushed into internal abdominal ring, but external ring was tightly closed and also incision of operation, and no pus found on opening the latter. Liver had one point of adhesion to omentum, otherwise normal; weight, 1,480 grams. Gall bladder tense with fluid; no concretions; ducts patent. Kidneys normal in appearance; right weighed 130 grams; left, 150 grams. Spleen normal; weight, 220 grams.

S. D. B.
J. B. H.

CHRONIC NEPHRITIS.

CASE 1.

J. B.; aged 35 years; nativity, Scotland; admitted to United States Marine Hospital, Chicago, Ill., February 5; died February 6, 1895.

History.—Patient was treated at this hospital for measles about two years ago. Shortly after his discharge he received office treatment for œdema of lower extremities, accompanied with slight dyspnœa. This subsided and he remained in good condition until about January 15, 1895; then œdema of lower extremities, dyspnœa, and cough appeared. These symptoms gradually grew worse. On admission upper and lower extremities were quite œdematous; no appreciable fluid in abdomen; no puffiness of face, but heart and lungs were working under great difficulty. Respiration very labored; lungs were filled with coarse mucous rales, obscuring heart sounds; percussion note over the lungs, especially posteriorly, was very poor, further indicating the congested condition; moderate cough, with bloody sputa. Urine contained a large amount of albumen, and very many casts—waxy, granular, epithelial, hyaline. Condition became progressively worse, and he died comatose.

Necropsy.—Pericardial sac contained 65 c. c. of clear fluid; no adhesions. Heart weighed 450 grams; large and muscular; valves competent; wall of left ventricle very thick; no adhesions in left pleural cavity; in right, many between lower lobe and diaphragm and external wall. Upper lobe of right lung contained air; the middle and lower lobes were solid, dark-red in color, blood and serum exuding freely from cut surface. There was crepitation in whole left lung, but the lower lobe was much congested, approaching the condition of right lower lobe. Weight of lungs: Right, 1,430 grams; left, 970 grams. Peritoneum in normal condition; gastro-intestinal tract not opened, apparently normal. Liver dark brown; weight, 2,060 grams; lobules indistinct; slight mottling of darker and lighter brown in section; no amyloid reaction with tr. iodi. Gall bladder and ducts normal. Each kidney weighed 180 grams. Capsules not adherent; both large, very pale externally and in section. Pelves and ureters normal. Bladder hardly larger than an English walnut; contained practically no urine; appearance normal. There was a stricture of urethra, but it would admit a French sound No. 15. Spleen weighed 170 grams; normal in appearance.

S. D. B.
J. B. H.

CASE 2.

T. C.; aged 36 years; nativity, Virginia; admitted to the marine ward, German Hospital, at Philadelphia, Pa., August 30; died September 26, 1894.

History.—When admitted was suffering with swelling of the abdomen and limbs and chronic diarrhœa. Examination revealed the presence of fluid in the abdomen in considerable quantity and œdema of the legs, which pitted very much on pressure. There was atheroma of the superficial arteries. No lesion of the heart was discernible, but the area of cardiac dullness was increased. The diarrhœa of which he complained was of long standing. About a week after admission he was discovered to have a hacking cough, which on examination proved to be a chronic laryngitis. About September 15 there was noted, on examination, dullness over the base of the lungs with the vesicular murmur decreased in intensity. He died very suddenly September 26, 1894. During his stay in the hospital his urine was very much decreased in quantity, sp. gr. 1.018 to 1.024; albumen was found in considerable quantity and granular tube casts were found by microscopical examination.

Necropsy (eighteen hours after death).—External appearance: Post-mortem lividity slight and rigor mortis marked. Thoracic cavity: No adhesions in pleural cavities, which were filled with fluid to the extent of 1 liter in each. The lungs as a whole were emphysematous; bases showed marked congestion, possibly beginning croupous pneumonia About 60 c. c. of fluid in pericardium. Heart: The right ventricle was small and showed no particular lesion; left ventricle was of normal size, with incompetency of mitral valve, the anterior leaflet of which showed atheromatous deposits; the aortic leaflets were hard, and the inner surface of the aorta was thickened and showed numerous calcareous deposits, "atheroma plates;" the heart muscle was somewhat thickened, and gave evidence of fatty degeneration in the area nearest the endocardium. Abdominal cavity: Liver was firmly attached to the diaphragm by its upper surface, and the duodenum was firmly attached to the lower border of the liver; the organ was small, very hard, and very irregular in shape, an advanced stage of atrophic cirrhosis; the insterstitial overgrowth was plainly visible, and the parenchyma was light yellow in color from fatty degeneration. Kidneys were normal in size, hard, capsule peeling with difficulty; numerous cysts were observed on the surface; the cortex was narrow and pale; the pyramids were distinct; interstitial nephritis, with parenchymatous change. Spleen was much enlarged and hard; there were also hemorrhagic infarctions which had undergone fatty degeneration in the center.

CASE 3.

G. A.; aged 52 years; nativity, Greece; admitted to United States Marine Hospital at San Francisco, Cal., March 30; died April 4, 1895, at 10 p. m.

History.—On admittance complained of insomnia, dyspnœa, and loss of appetite. Heart was found to be enlarged laterally, also downward and to the right; cardiac action was feeble, accelerated, and arrhythmic; a systolic blowing murmur was heard at the apex beat and also transmitted into the axilla. Urine was scanty and loaded with albumen. A medium grade of anasarca developed. Treatment was futile. Cyanosis soon became extreme and dyspnœa increased. Mental faculties were unclouded until a short time before death.

Necropsy (twelve hours after death).—Lividity well marked. Pericardial surfaces covered with minute red points. Heart was much dilated; walls thin, fat, and flabby; mitral murmur was due to stretching of basal ring; the leaflets were healthy; tricuspid valve was very hyperæmic; aortic and pulmonary semilunar valves were normal; ascending and transverse aorta exhibited several large patches of endarteritis. Lungs normal. Liver showed engorgement of sublobular and hepatic veins, and tissue was stained with bile; gall bladder distended from catarrhal obstruction of ducts. Kidneys contracted, leathery on section; cortex thin and contained fat in pelves; capsules nonadherent.

CASE 4.

J. E. M.; aged 53 years; nativity, Pennsylvania; admitted to marine ward, German Hospital, Philadelphia, Pa., May 23, 1895, suffering with influenza and aortic regurgitation. He also gave a history of chronic bladder and urethral trouble, requiring the use of the catheter, and dating back about twenty years. The cough and other symptoms of influenza improved, but he was very weak, when headache, vomiting, and delirium set in, resulting in death on June 13, 1895, from uræmia.

Necropsy (eight hours after death).—Rigor mortis slight; general nourishment poor. Heart: Pericardium normal; heart hypertrophied, especially left ventricle; aortic valves incompetent from shrinking, due to calcareous degeneration; the entire arch of the aorta was dilated and lined with calcareous plates. Pleural cavities normal; both lungs congested posteriorly, otherwise normal. Intestines distended with gas. Kidneys: Both enlarged and seat of chronic and acute inflammation, with extravasation of blood in the pelves. Bladder contracted, with thickened walls and hemorrhagic points all over the mucous membrane. Prostate enlarged. Spleen large and soft.

G. T. V.

CASE 5.

J. M.; aged 45 years; nativity, Ohio; admitted to United States Marine Hospital, Chicago, Ill., November 8, 1894; died March 9, 1895.

History.—Patient gave a general history of syphilis extending over many years, and for the last three to five years œdema of lower extremities; later anasarca, frequent micturition, and diminished amount of urine. He had been a hard drinker. In 1891–92 he was treated at Cleveland, Ohio, for severe headaches, thought to be of syphilitic origin. At all events, he was in a short time fit for duty again after the use of a mixed specific treatment. In the fall of 1893 he was at the West Pennsylvania Hospital, Pittsburg. At that time he was unable to walk from the extent of the anasarca; weight on admission, 238½ pounds; on discharge, 175 pounds. He was at this hospital (Chicago) twelve days in October, 1894, for relief from general anasarca and severe pains in occiput, shoulders, and arms. He experienced great relief after use of mixed specific treatment, and the anasarca was reduced. He left hospital at his own request, but anasarca returned. On his readmission there was œdema of extremities and face, ascites, enlarged liver, heart's action regular, no cardiac murmur, urine for twenty-four hours only 525 c.c., sp. gr. 1.020, acid, large amount of albumen, many granular and hyaline casts. Appetite very poor; occasional attacks of bilious vomiting; after one of these he was found dead during the night, without any symptoms giving warning of approaching end.

Necropsy.—Two hundred c.c. clear serum in pericardial sac; no adhesion. Heart of small size; weight, 260 grams; valves competent; size of cavities and thickness of walls bearing good relation to whole organ. Many strong adhesions in left pleural cavity, especially between lower lobe and posterior wall and diaphragm. Few adhesions in right pleural cavity. Large amount of clear serum in both pleural cavities (not measured). Left lung weighed 600 grams; right, 360 grams. Left lung, deep-red color; contained little blood; otherwise normal. Right lung compressed, but not bound down, deep purple color; contained little air or blood. Abdomen much distended; contained several liters of clear serum (not measured). Digestive tract apparently normal (not opened): Liver weighed 2,220 grams; capsule thickened, pale yellow externally, reddish brown on section; section somewhat granular looking; lobules distinct. Gall bladder rather large, somewhat distended with bile. Left kidney weighed 250 grams; right, 230 grams; both large, flabby; capsules adherent, very pale, pinkish yellow externally and on section; section had a pink and white mottled appearance. Bladder contracted and empty. Spleen weighed 280 grams; capsule thick, tissue very soft.

S. D. B.
J. B. H.

CASE 6.

Lobular pneumonia.

J. M.; aged 48 years; nativity, Ohio; admitted to the United States Marine Hospital, Memphis, Tenn., December 29, 1894; died January 5, 1895.

History.—The patient was in a very dull mental condition when admitted, and, although he was apparently rational, he could give little account of his sickness, and fell asleep as often as he was aroused while undergoing examination. He had very slight fever, mucous rales in the chest, œdema in the lower limbs, and the waxy color belonging to Bright's disease. Examination of the urine revealed a very small quantity of albumen. The mental condition improved somewhat under treatment, but pneumonia developed and death soon resulted.

Necropsy (six and one-half hours after death).—There was post-mortem lividity in dependent parts. Very slight rigor mortis was present. The general nourishment was good. The pupils were natural or slightly dilated. Some œdema of the skin was to be seen in the legs. The heart weighed 442 grams. A small quantity of serum was found in the pericardial sac. The cardiac valves were all competent. The heart muscle was much hypertrophied, the wall of the left ventricle being very thick and that of the right ventricle thicker than normal. The left lung weighed 853 grams; its pleura was slightly adherent to the chest wall at the back. The lung did not collapse, and numerous small consolidated or partly consolidated patches were found in both lobes. Where not consolidated its tissue was œdematous. The right lung weighed 847 grams; it was largely adherent to the chest wall, and on the surface next the axilla were large patches of a fresh fibrinous deposit; it was œdematous and collapsed only slightly. There was considerable lobular consolidation of the tissue, the upper lobe of this lung being the most affected with pneumonia of all parts of the lungs. The liver was normal in appearance; it weighed 2,460 grams. Only one kidney—the left—was weighed, on account of the difficulty experienced in removing the enveloping fat; its weight was 215 grams; the capsule was not adherent. Both kidneys were of about the same size and the same general appearance. The gross appearance of the tissue was only peculiar in being a little paler than normal by reason of whitish streaks in the radiating lines of the cortex. The spleen weighed 448 grams and was normal in appearance.

A. C. S.

CASE 7.

P. C.; aged 47 years; nativity, New Hampshire; admitted to United States Marine Hospital, Chicago, Ill., August 28; died September 14, 1894.

History.—Patient admitted in drowsy condition, complaining of pain in left chest. He had had diarrhœa for two weeks. There was tenderness on pressure along crest of ileum and over sacrum on left side. During first week he slept all the time, took very little nourishment, had involuntary micturition. Breathing stertorous; pupils alike, reacting well to light; tongue protruded straight; no paralysis; pulse good. Urine, sp. gr. 1.006; pale, greenish, alkaline, small amount of albumen, no sugar, a little flocculent sediment containing great numbers of crystals of triple phosphate. Again later, there were no phosphate crystals in sediment, but a few granular casts, squamous epithelium, many white cells with multiple nuclei. A stricture of urethra was found, admitting only a French No. 8 bougie, but easily dilated to French No. 18. After this he had control of his urine, but was still in such a semicomatose condition that he would perhaps stand by his bedside, have the urinal in his hand, and yet pass all his urine on the floor.

Examination of chest disclosed a limited area of dullness at base of left lung posteriorly, line unchanged by position, a few fine crackling râles at end of inspiration in same area, and friction sounds at and below apex of heart over small area. There was always pain on deep inspiration, referred to last ribs on the left. After the first week patient was less inclined to sleep and had some sleepless nights. Close questioning at different times brought out these facts: There had been at some past time œdema of lower extremities; he had been subject to severe headaches, which would last two or three days and incapacitate him for work; but, except a few days before admission, there had been no headache for eight or nine months; there had been disturbance of vision, rendering him on some days unable to read a paper; there had been frequent micturition for a year past, compelling him to rise usually four times during the night. August 29, chill at 5 p. m. for half an hour, temperature at 6 p. m. 38° C.; September 11, chill at 3 p. m., temperature again 38° C.; September 12, chill at noon, temperature later 39° C. Increasing coma for a few days before death.

Necropsy.—General nourishment, fair. Pupils alike and of normal size. Heart: Weight, 305 grams; valves competent; pericardial sac contained 30 c. c. of clear fluid. Pleural cavities: Right, a few weak adhesions to apex; left, strong adhesions, confining perhaps 100 c. c. of clear fluid posterior to lower lobe; enlarged bronchial glands, one calcareous; visceral surface of pleura looked as if covered with small tubercular masses. Left lung weighed 660 grams; right, 690 grams; both lungs congested with blood. Intestines presented a normal appearance. Liver, dark brown; weight, 1,790 grams. Left kidney weighed 140 grams, pale, nodular, capsule adhering strongly when removed, revealing numerous small abscesses, often ruptured, and discharging creamy thick pus; tissue tough under knife, cortex thin, tissue pale, some small abscesses scattered through organ. Right kidney weighed 110 grams; same general condition as left, also two cysts on surface containing clear fluid; pelvis large, cortex thin. Spleen weighed 260 grams; appearance normal. Membranes of brain presented normal appearance. Brain weighed 1,280 graims; no fluid in ventricles, no capillary congestion.

CASE 8.

W. F.; aged 58; nativity, New Jersey; admitted to marine ward, St. Vincent's Hospital, August 21, 1894; died August 29, 1894.

History.—The patient said he had been sick for two years, but until recently had been able to perform light work. When admitted had œdema of feet and legs, shortness of breath, was very weak, and body much emaciated. The urine was scanty, pale straw color, sp. gr. 1.015, and contained moderate amount of albumen.

Necropsy (ten hours after death).—External appearances: Body much emaciated, rigor mortis slight, and post-mortem lividity absent. Thoracic cavity: Pleura normal, lungs healthy, pericardium thickened; heart much hypertrophied, weighing 550 grams; the walls of the left ventricle were 4 cm. thick, and those of the right ventricle were also thickened; the dilatation was slight, and the valves were competent. Abdominal cavity: The liver, spleen, and pancreas were normal. The kidneys were small and contracted, being about one-half their normal size. The cortical substance was very thin and pale. The pelves were small and the capsules adherent.

CASE 9.

D. C.; negro; aged 29 years; nativity, Tennessee; admitted to the United States Marine Hospital, Evansville, Ind., September 13; died September 24, 1894.

History.—Was treated in this hospital February 7 to April 7, 1894, and during the summer at the city office, for Bright's disease. When admitted, September 13, the following symptoms were present: Almost complete suppression of urine, rapid weak pulse, hurried respiration, muscular twitchings, and delirium. The urine contained albumen. The urinary function was partially reestablished on the 15th, but two days later this improvement was lost, and evidences of pulmonary congestion became manifest; the patient grew worse from day to day, and death ensued on the 24th, as above stated.

Necropsy.—Rigor mortis present; body wasted. Pleural cavities contained considerable fluid, and there were many old and firm adhesions; the lungs were highly congested, but crepitant. The heart was hypertrophied, and the liver enlarged. The kidneys were of the small contracted variety, the cortical substance being largely destroyed.

CASE 10.

Uræmic coma.

J. B. M. (colored); aged 33 years; nativity, West Indies; admitted to United States Marine Hospital at San Francisco, Cal., December 10; died December 19, 1894, at 10.30 a. m.

History.—On admittance patient complained of muscular spasms, affecting at different times almost the entire voluntary muscular system, also of shifting hyperæsthesia of the skin. The appearance of the tongue was suggestive of digestive disturbance. Physical examination failed to disclose evidence of organic disease. A provisional diagnosis of spasm of muscles (of leg) was made. Treatment was symptomatic. Death was preceded by coma lasting several hours.

Necropsy (twenty-seven hours after death).—Rigor mortis pronounced; body well nourished, the subcutaneous tissues containing much fat. Pericardial sac and contents normal, except that the left ventricle of heart showed concentric hypertrophy. Lungs and pleuræ healthy, the lungs exhibiting a mild grade of passive congestion posteriorly. Liver, spleen, stomach, and intestines appeared sound. The kidneys were small, each about the same in size, and together weighed 85 grams. Capsules adherent. Surfaces uneven, nodular, and covered with small serous cysts. Substance tough and resisted cutting. The process of fibroid degeneration involved principally the cortical portions. The pyramids were scarcely at all wasted. The bladder was much contracted; walls thickened and inflamed; capacity about 30 c. c. A careful examination of the brain failed to show—what was suspected before death—a cerebral hemorrhage. This suspicion was based upon the statement that the patient's urine was free from albumin.

CASE 11.

Hyperæmia of brain, with foci of softening.

C. A. K.; aged 55 years; nativity, Germany; admitted to the United States Marine Hospital, San Francisco, Cal., February 14; died at 9.34 a. m., February 16, 1895.

History.—Entered hospital in a comatose condition; could be aroused with difficulty. He would offer slight resistance when being examined. Pupils both contracted. Patient passed his urine involuntarily. Patient had no fever while in the hospital, but before entering had had a temperature of about 39° C. Patient had been sick for about two weeks before entering hospital, and had been receiving private treatment for specific trouble.

Necropsy (*one and one-half hours after death*).—General nutrition of body poor. Brain: On opening the skull considerable cerebro-spinal fluid mixed with blood escaped. The meninges were congested and all the vessels were engorged. Pia mater presented patches of cloudy swelling, or degeneration. Pia covering superior portion occipital lobes on both sides was of a deep scarlet color. There was much fluid under the pia and dipping down in the sulci on surface of brain. Brain weighed 1,345 grams, and was what would be called a "wet brain." On section of the brain the puncta vasculosa made their appearance. When the level of the corpus callosum was reached a small area of softening was discovered on the outer side of the left occipital lobe. One or two more slices being removed disclosed another mass of softened and broken-down brain matter on the same side, involving the external capsule and part of the lenticular nucleus, and part of the island of Reil. This would possibly account for the aphasic condition of patient. This softened mass was about 3 cm. in diameter. Heart: Right ventricle walls were flabby; left ventricle walls had undergone concentric hypertrophy; valves competent. Lungs congested, otherwise normal. Kidneys: Right one smaller of the two; some parts of cortical substance entirely gone. Both kidneys contracted with small margin of cortical substance. Other viscera normal.

CASE 12.

Valvular disease of heart—Cirrhosis of liver.

S. McM.; aged 45 years; nativity, New York; admitted to marine ward, Cleveland City Hospital, Cleveland, Ohio, October 9, 1894; died January 29, 1895.

History.—Patient had been in hospital about five months. The chief symptoms were digestive troubles, dyspnœa, and excessive œdema and ascites, the latter requiring aspiration on several occasions. All the usual remedies were employed.

Necropsy (*six hours after death*).—Rigor mortis well established; marked lividity over dependent portions of body. Entire body, especially the lower limbs, was œdematous. The pericardium contained 50 c. c. clear serum. The heart was enormous, being about three times its natural size. The aortic valves contained a number of calcareous patches, and similar patches were found in the beginning of the aorta. The other valves appeared somewhat less elastic than normal. There was considerable hypertrophy of the ventricular walls, especially the left, and all cavities were greatly dilated. The right plural cavity contained 10 c. c. clear serum. The right lung showed recent adhesions between the lobes and at the base; it was œdematous, otherwise normal. The space normally occupied by the left pleura was almost completely obliterated by the pressure of the large heart and by old firm adhesions. This lung was much compressed, œdematous, and contained at the apex a cavity about 5 cm. in diameter filled with thin, dark pus. The abdominal cavity contained 3,000 c. c. turbid serum. There were no adhesions or other signs of inflammation at the points where the aspirator needles had been introduced. The liver was considerably smaller than normal, and began to show about the margins the distinctive hobnail characters. The spleen was in much the same condition, being small, hard, and fibrous. The pancreas was normal. The kidneys were both much enlarged, capsules rather easily removed, and were apparently merging into the large white kidney. The stomach and intestines were somewhat congested, otherwise normal. The brain, aside from œdema, was normal. The bladder and prostate gland were normal.

R. M. W.

CASE 13.

Hypertrophic cirrhosis of the liver.

T. R.; aged 35 years; nativity, Maryland; admitted to marine ward, Cleveland City Hospital, Cleveland, Ohio, May 17; died July 15, 1894.

History.—Patient failed rapidly from time of admission. Enormous distention of the abdomen with dyspnœa marked the later weeks. Albuminuria was marked and constant.

Necropsy (eighteen hours after death).—Rigor mortis moderate. Heart diminished in size; right and left ventricles contained antemortem clots. Pericardium contained about 75 c. c. clear serum. Right pleural cavity contained about 150 c. c. clear serum; left, 75 c. c. of same. Both lungs showed hypostatic congestion of lower lobes. Stomach normal; intestines congested. Pancreas abnormally hard and cut with resistance. Spleen twice the normal size; capsule not adherent, dark red, soft, and congested. One small supernumerary spleen was found. Liver was enormous, weighing 4,000 grams; cut with a creaking sound; hobnailed in lower portion, and showed typical hypertrophic cirrhosis. In the center of the right lobe there was a large caseous patch, besides several smaller ones scattered throughout. Both kidneys were of the large white variety, typical chronic parenchymatous nephritis. Bladder normal. Brain not examined.

R. M. W.

CASE 14.

Valvular disease of heart.

T. H.; aged 50 years; nativity, New York; admitted to United States Marine Hospital, San Francisco, Cal., July 7; died September 20, 1894, at 5.25 p. m.

History.—On admittance complained of frequent asthmatic spells, and dyspnœa on slight exertion. He had frequent attacks of vomiting. Feet were œdematous. Examination disclosed heart to be considerably enlarged. Urine was small in amount and contained much albumin. Treatment was unavailing. On September 17 the typical eruption of herpes zoster came out on lower part of right thoracic region, reaching in a zone about 12 cm. wide from spine to sternum. The eruption was preceded by several days of severe pain. Patient also developed pericarditis.

Necropsy (seventeen hours after death).—Rigor mortis noted; body poorly nourished Pericardial sac contained about 300 c. c. of bloody exudate. The parietal coat was separated from the visceral reflection of pericardial sac, not only by the bloody exudate, but also by a villous reticulated tissue, which had apparently been torn apart in places by distention of the sac with fluid. Heart weighed 995 grams; walls of left ventricle were 5 cm. thick; the segments of the mitral valve were diseased so as to be incapable of fully closing; there were patches of fatty and calcareous degeneration upon the other valves; areas of degeneration were also found in the aorta. Both pleural sacs contained considerable clear serum; the left lung was compressed by the pericardial distention; deformity was very marked along the anterolateral margin of lower lobe; both lungs were œdematous. A mere vestige of the right kidney, inclosed in a large quantity of loose fat, was found in the normal situation; little more than the pelvis attached to the ureter remained; the small mass weighed 15 grams; the left kidney weighed 175 grams, and was in a state of fibroid degeneration; only a small rim of the cortical substance was left, while the medullary portion was unusually clearly defined; the surface was roughened in places and the capsule adherent. Spleen normal. Other organs not examined.

CASE 15.

Cerebral hemorrhage.

T. H.; aged 50 years; nativity, Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., June 19; died November 2, 1894.

History.—In September, 1893, he was treated in this hospital for chronic Bright's disease, from which he claimed to have been suffering for a long time. He also mentioned the fact of his having had several attacks of paralysis of right arm, accompanied with aphasia, from which he gradually recovered. Anæsthesia of the right little finger was still evident. On examination, the apex beat was found to be displaced downward to sixth interspace in mammary line. Albuminuria was also noticed. After receiving treatment for ten days the patient left the hospital, to which he returned again November 25, 1893, complaining of pains in right side of chest. He was treated for acute pleurisy, and discharged January 29, 1894. When admitted the last time, in June, 1894, he complained of an attack of paralysis in the right arm, which occurred three weeks previously. On admission the condition of the arm was found to have already improved, flexion, pronation, and supination being fair, although imperfect as compared with the movements of the opposite arm. There was stiffness of the fingers and difficulty in picking up objects. The senses of pain, touch, and temperature were normal; muscular power was, however, greatly impaired; the finger nails were rough and brittle. Further examination revealed hypertrophy of heart, displaced apex beat, as previously noted, aortic valvular lesion, marked artero-sclerosis; albumin, hyaline and granular casts in urine.

The patient's power of speech had been gradually failing for two years, his mind showing at the same time signs of deterioration. For several weeks previous to death the patient's mental changes became so marked as to cause numerous complaints to be lodged against him. He would wander about the ward at night, and while appearing to be awake and entirely conscious of his acts at the time, remembered nothing about them in the morning, nor could he account for what he had done. On the morning of November 2 he felt as well as usual, but at noon he suddenly fell to the floor. He was put to bed, where he lay unconscious, vomiting, and covered with cold sweat. His face was pale, respiration deep, noisy, stertorous, cheeks relaxed, drawn in at every inspiration, and puffed out at every expiration. His eyes were directed staight forward, and showed at no time a conjugate deviation. The pupils were contracted and failed to respond to light. There was finally rattling in the throat, due to mucus and saliva. Treatment for cerebral hemorrhage was at once instituted. General epileptiform convulsions began and lasted until the patient died, two and one-half hours after the beginning of the attack.

Necropsy (*nineteen hours after death*).—Rigidity of lower extremities, and arms relaxed. On removing the calvarium the meninges were found to be greatly congested, chiefly over left motor area. When the dura mater was severed, a large quantity of blood escaped from the sinuses. All the cerebral vessels were congested, otherwise the organ appeared normal as to its conformation. Base of brain: A large subarachnoid clot was seen extending over the greater part of the under surface of the cerebellum. On following its pedicle it was found to extend into the fourth ventricle, which was also filled with softened brain matter, thence via iter e tertia ad quartum ventriculum into the third ventricle, thence into left ventricle, from which some blood escaped through the foramen of Monro into the right ventricle. The hemorrhage originated in all probability from the left lenticulo-striate artery. The left ventricle was greatly distended and filled to its utmost capacity with blood; the right was only partially filled. The lenticular nucleus was entirely destroyed, probably due to a localized softening following a previous clot. The other ganglionic nuclei were altered, either in appearance or in position. The brain matter seen in the fourth ventricle was probably washed from the left ventricle with the blood stream. All the cerebral arteries showed atheromatous changes. The right vertebral artery failed to unite with its fellow of the opposite side at the usual point to form the basilar, which deviated to the left, having the appearance of being of an unusual length. The point of union of the two vessels could not be found. On dissection, the right vertebral was found in the cervical region, but of a lesser caliber than its fellow of the opposite side. Heart: Pericardial sac contained about 100 c. c. of fluid; fatty deposit on cardiac walls; the muscular fibers showed no signs of degeneration; concentric hypertrophy of left ventricle; aortic valves calcareous; other valves normal; weight, 590 grams. Liver showed traces of fatty degeneration, but it was normal in size. Left kidney reduced in size; three small cysts upon the surface; fatty degeneration in portions of the cortical substance; color, yellowish gray. Right kidney: Two transparent cysts on the surface; condition otherwise the same as left; weight of each, 110 grams. Other organs not examined.

CHLOROFORM INHALATION.

Case 1.

M. McC.; aged 50 years; nativity, Ohio; admitted to United States Marine Hospital, Cairo, Ill., January 17; died January 21, 1895.

History.—Patient had suffered for some years with a complete fistula in ano, and requested an operation. On examination a large fistula, complete, and two smaller, incomplete, were found. He was accordingly prepared for operation by incision. On January 21 he was placed on the table and the administration of the anæsthetic (chloroform) begun. He breathed well and regularly, and appeared to take the anæsthetic excellently. Immediately upon becoming unconscious he threw up one hand and ceased to breathe. The anæsthetic was at once suspended and every effort, including artificial respiration, the battery, cold affusion, suspension, and hypodermic injections of ether, digitalis, and strychnine, was made and persisted in for one hour and a half without success.

Necropsy (five hours after death).—Body was that of a well-nourished, muscular white man of middle age. Post-mortem lividity well marked. Rigor mortis absent. Right pupil dilated; left contracted. Heart: Weight, 375 grams; enlarged; pericardial sac normal; tricuspid valve incompetent and showing signs of fatty degeneration; left ventricle hypertrophied; right ventricle flabby, dilated, and thinned; great blood vessels apparently normal. Lungs: Left weighed 300 grams; pleural cavity normal; lung adherent to diaphragm, and inferior lobe hepatized; right weighed 360 grams; adherent to chest wall at apex; deeply congested throughout; otherwise normal. Abdominal contents, especially peritoneum, fatty. Liver mahogany color; weight, 2,060 grams; gall bladder moderately full of dark fluid bile. Kidneys loaded with fat; capsules inseparable; weight 180 grams each; both congested, and right kidney showing several small cysts. Bladder thickened. Spleen friable, dark in color; weight, 270 grams. Skull of normal thickness. Dura mater thickened and membranes congested. Sinuses filled with dark fluid blood. Brain congested, and weighed 1,560 grams.

J. M. G.

Case 2.

R. S.; aged 37 years; admitted to the United States Marine Hospital, Baltimore, Md., March 4; died March 6, 1895.

History.—Patient came in hospital with sore on penis (phagedenic ulcer) and phimosis. Duration of former one month; latter about two weeks. Patient said he had always been a healthy man; with exception of malaria had never been sick. Examination of heart and lungs showed them to be apparently normal. Patient was brought in operating room to have circumcision performed. Those present were Surg. George W. Stoner, Dr. James F. Adams, Dr. Frank E. Wagner, and two hospital nurses. Dr. Adams gave the anæsthetic. Squibbs's chloroform was used on Esmarch's inhaler, only a few drops being poured on at one time and the inhaler held some distance above the nose to warrant the free admixture of air with the vapor. The patient had taken but a few inhalations when he began to struggle; he passed into the exhilarating stage, and nothing unusual was recognized except the high arterial pressure; but during this stage and while reflexes were present the patient's breathing suddenly stopped, after two long gasps, and immediately thereafter the pulse could not be felt. The patient relaxed; his lips began to turn blue, indicating paralysis of respiration and heart. Artificial respiration was immediately commenced and kept up for over two hours; head was lowered, extremities raised, hypodermics of strychnine, atropia, and stimulants were administered, but all to no avail.

Necropsy (*eight hours after death*).—Rigor mortis marked; pupils dilated; body well nourished; weight estimated at 170 pounds. Left lung congested; weight, 750 grams. Right lung congested; weight, 700 grams. Heart weighed 400 grams; seemed to be normal. Liver weighed 2,500 grams. Left kidney weighed 255 grams; enlarged and much congested. Right kidney weighed 250 grams; same condition as left. Brain somewhat congested; weight 1,750 grams.

G. W. S.

PERNICIOUS ANÆMIA.

J. E. T.; aged 34 years; admitted to the United States Marine Hospital, Baltimore, Md., February 19; died February 22, 1895.

History.—Patient dated his trouble from an attack of la grippe about four years ago. Since then he has been troubled more or less with nausea, vomiting, and constipation. Attacks of dyspnœa and pain in back are also complained of at times. On admission to hospital patient complained of weakness, and was in a condition of extreme anæmia with icteroid hue of skin. Lower extremities somewhat œdematous and pitted on pressure over tibia. Impulse of heart was very weak; a murmur simulating a mitral regurgitant was heard, but it was not transmitted to the left. Patient was given laxatives and purgatives, but bowels did not move. Enema was given with better effect, and he slept well for several hours, and afterwards took some nourishment.

February 21.—Patient seemed to be better; took some nourishment and vomited but little.

February 22.—Patient did not take any nourishment, and with difficulty took medicine; vomiting at intervals and growing very weak. Stimulants were given by mouth and hypodermically; nourishment given by the rectum, but to no avail. He died at 3.45 p. m.

Necropsy (*fourteen hours after death*).—Rigor mortis marked; body emaciated; weight about 100 pounds; height about 5 feet 8 inches. Heart weighed 400 grams and apparently normal; no valvular disease. Blood amount very much diminished and red corpuscles reduced to probably 1,500,000 to cubic millimeter. Right lung weighed 600 grams; somewhat adherent to chest wall; otherwise normal. Left lung weighed 600 grams; presented about same appearance as the right. Right kidney weighed 220 grams; had undergone some degenerative change, but the cortical and medullary portion could be easily marked out. Left kidney weighed 220 grams; apparently normal. Liver weighed 2,450 grams; somewhat enlarged. Spleen seemed to be normal. The organs throughout the body presented appearance of extreme anæmia.

G. W. S.

ORGANIC STRICTURE OF URETHRA—CHRONIC INFLAMMATION OF BLADDER—PYONEPHROSIS.

J. H.; aged 45 years; nativity, Germany; admitted to United States Marine Hospital, Chicago, Ill., May 2; died September 10, 1894.

History.—On admission he was recovering from a mild attack of erysipelas of face and scalp, but he was sent to hospital on account of an organic stricture of urethra, which had existed many years. An operation for stricture was performed on him in Buffalo fifteen years before. No trouble thereafter for twelve years, but during past three years he has had increasing difficulty in urinating, until now he voids urine only in drops and there is a continual dribbling. A very tight stricture was found about 10 cm. from meatus. Entrance into bladder was effected with a filiform bougie, over which was passed Otis's dilating urethrotome. Micturition free after this, but at frequent intervals, never over two hours. There was pain in the back, and toward the end of May a tumor was found at left sacro-iliac joint, hard, not movable, not attached to integument, painful on pressure. Œdema of left lower extremity accompanied this. Several slightly enlarged lymphatic glands in each groin and one at each elbow; none in neck. The tumor in back subsided entirely within six weeks, during which time he was placed on mixed specific treatment. Patient's statement was that he had had gonorrhœa three times, and four years before he had a single ulcer on glans penis which lasted several months, apparently cicatrizing and breaking down. Cicatrix was visible, its surface much depressed, as if from deep ulceration. He had no knowledge of inguinal enlargement, eruption, or other symptom referable to syphilis at time of ulcer or subsequently to date of admission to hospital.

The urine during whole sickness was pale green in color, of offensive odor, contained a large amount of sediment, much of this of ropy consistency, and under the microscope were found at different times red blood corpuscles and great numbers of pus cells. June 20, small abscess, calf of left leg; July 9–20, conjunctivitis of left eye and abscess of upper lid; July 25–30, left testicle enlarged and painful; August 19, node on left tibia.

August 1.—After this date there was constant and severe pain in left groin and in sacrum and in ilium in left back, increasing inability to take erect position on his feet or to lie on his back without flexing left thigh. The enlargement over left sacro-iliac joint did not recur. Examination showed that the left hip joint was not diseased. Abdominal palpation did not disclose a cause for symptoms. Frequent attacks of diarrhœa were noted. The œdema of left lower extremity (starting in May) decreased and had disappeared on September 1. Temperature tested frequently, but no elevation discovered. No chill.

Necropsy.—Emaciated. Heart weighed 250 grams; valves competent; cavities and walls of good size and thickness; pericardial sac and aorta, normal appearance. Right pleural cavity had firm adhesions in upper half; left none. Left lung weighed 600 grams; right 650 grams. Lungs both black, tarry color, full of blood. Omentum contained much fat. Peritoneum normal. Posterior to peritoneum below left kidney was found a collection of pus, about 100 c. c., which had burrowed along posterior to psoas muscle. A small point of denuded bone discovered on inner surface of ilium, near sacrum, but no necrosis in the vicinity. No connection between this pus cavity and kidney or ureter. Stomach appeared normal. Intestines were in a condition of chronic congestion. Liver yellowish brown, fatty; contained much blood; weight, 1,650 grams. Gall bladder and ducts normal. Tissue of both kidneys only about 1½ cm. thick; necrotic layer toward pelvis. Pelves greatly dilated, filled with bloody pus. Ureters very large, three-fourths cm. in diameter. Bladder contracted, somewhat sacculated. Prostate enlarged. Urethra was of fair caliber; contained a cicatrix from urethrotomy. Spleen of normal color and consistency; weight, 260 grams; posterior extremity tapering.

ABSCESS OF KIDNEY.

E. B.; aged 35 years; nativity, Germany; admitted to United States Marine Hospital at San Francisco, Cal., October 4, 1893; died February 21, 1895, at 1.30 p. m.

History.—Up to date of admission to hospital patient had been ill eighteen months. Illness began with pain on micturition. Denied having had venereal trouble. On admittance he suffered with pain in bladder, hæmaturia, and discharge of pus following urination. Medication afforded no relief. Upon the belief that the disease was confined to bladder, suprapubic cystotomy was done. Palpation within the bladder and electric illumination showed nothing abnormal in this viscus, except some thickening and contraction of the walls. Suprapubic irrigation and drainage was carried out for several weeks, affording no benefit. About the 1st of January, 1895, general anasarca developed, and repeated tappings of the belly were performed at intervals of several days. From the long-continued discharge of pus pyelonephritis was thought to exist, and exploratory punctures over both kidneys were made with a long aspirator needle and syringe, but no pus was withdrawn.

Necropsy (*two hours after death*).—Extreme emaciation. Heart and lungs normal. Slight pleural adhesions over middle lobe of right lung. Liver enlarged; weight, 2,300 grams; in condition of amyloid degeneration. Spleen slightly enlarged; pancreas healthy. Right kidney enlarged, streaked with fibroid tissue, and acutely inflamed at infundibula and pelvis; left kidney greatly enlarged, and adherent to spleen and colon. The peritoneal covering was much thickened. The entire renal substance was destroyed. In its place there was an abscess cavity filled with pus. The cavity presented a curious chambered appearance, being divided into wedge-shaped chambers converging toward hilum. The chambers were separated by partitions of inflammatory tissue. Bladder was found to be as noted in history. Other organs not examined.

INFLAMMATION OF FALLOPIAN TUBES.

S. B.; aged 28 years; nativity, Germany; admitted to marine ward, Cleveland City Hospital, Cleveland, Ohio, January 15; died February 14, 1895.

History.—Patient was operated upon six months ago at this hospital for intrapelvic abscess of gonorrhœal origin, from which she entirely recovered. Upon admission January 15, 1895, signs pointed to pus in right fallopian tube. Treatment for one month failed to relieve the symptoms. Laparotomy was performed February 14, 1895, and the diagnosis found to be correct. The uterus, tubes, ovaries, omentum, and even the appendix were bound into one indistinguishable mass by adhesions, the cul-de-sac of Douglas being obliterated. The tubes and ovaries were removed, but considerable hemorrhage was encountered in breaking up the adhesions. This was checked, and a Mikulicz's tampon was introduced after flushing the abdomen. A secondary hemorrhage occurred as the patient reacted from the anæsthetic. Patient was unable to rally from the shock, and died at 9 p. m. the same day.

Necropsy (*eighteen hours after death*).—Rigor mortis, moderate. The source of the hemorrhage was probably in the right iliac fossa, where strong adhesions had been broken up. The lower end of the omentum was a mass half an inch thick and had a fleshy appearance where it had grown fast to the other tissues. No hemorrhage had occurred from the uterine pedicles. There was nothing peculiar about the other organs of the body.

R. M. W.

OSTEOSARCOMA OF FEMUR.

A. H.; aged 41; nativity, Sweden; admitted to the marine ward, German Hospital, Philadelphia, Pa., September 18, 1894, with what was taken to be periostitis of the left tibia. An incision was made to determine the exact condition and the diagnosis seemed confirmed. The incision never entirely healed, and a tumor grew under it and reached about the size of a baseball, when a diagnosis of osteosarcoma was made, which was confirmed by microscopical examination. The leg was amputated above the knee on January 4, 1895, but the growth returned in the stump. He emaciated rapidly and died March 23, 1895.

Necropsy.—The stump showed a number of enlarged glands which, on incision, were found to be very soft. The end of the femur was enlarged and softened. There was no distinction between hard and cancellous tissue. Thorax: Adhesions on both sides; fluid in upper parts of both pleural cavities. Lungs were studded with tumor nodules, both superficial and deep. The pleuræ on postero-external surfaces were occupied by small flat nodular tumors, firmly attached to chest walls. At apex of right lung there were a few tubercular areas. Heart: Left ventricle hypertrophied; otherwise heart normal. Spleen enlarged; congested. Liver enlarged; contained some small superficial tumor nodules, firmly attached to diaphragm. Kidneys enlarged; congested; parenchymatous degeneration; suprarenal capsule left side contained a nodule about the size of a cherry.

ACUTE MYELITIS.

C. T.; aged 34 years; nativity, Maryland; admitted to the marine ward, German Hospital, Philadelphia, Pa., May 29, 1895, being paralyzed in both lower extremities, and had a sensation as if a belt were around his body. The patella reflexes were increased, areas of anæsthesia and others of paræsthesia were found on both lower limbs. There was also loss of sensation to heat and cold. At the beginning he had retention of urine, but toward the end he had incontinence of both urine and fæces. Bed sores appeared about the beginning of October, but yielded to treatment. His symptoms became gradually more marked, and two days before death, which occurred January 9, 1895, his temperature began to rise and reached 40.9° C. the morning of his death. He was unconscious for two days, and at times his breathing was stertorous.

Necropsy.—All the organs were healthy except the spinal cord, which was inflamed transversely at about the mid-dorsal region. There were also ascending and descending degenerations of cord.

PYÆMIA—NECROSIS OF SPHENOID AND FRONTAL BONES.

W. Mc. (colored); aged 43 years; nativity, Georgia; admitted to United States Marine Hospital, St. Louis, Mo., June 1; died June 19, 1895.

History.—About four weeks ago his teeth on the right side began to pain him, and the pain gradually extended over the right side of the face and temporal region. There was no visible swelling of the face, and examination of the throat revealed nothing distinctive. The pain was so great that morphia was required for its relief, and his trouble was attributed to neuralgia of the inferior maxillary nerve. Temperature normal, bowels regular, examination of urine negative.

June 4.—There is a slight swelling posterior to the pharynx and to the right, and he still complains of great pain over the right side of the face and head. He now has a temperature of 38.2° C. The swelling posterior to the pharynx and on the right side of the face slowly increased, and extended down the right side of the neck below the jaw. As it was evident that an abscess was developing in the parts noted, on the morning of the 11th he was given an anæsthetic and an exploratory incision was made over the anterior border of the sternomastoid below the jaw, and by careful dissection gradually deepened and extended upward between the great vessels of the neck and posterior surface of the ramus of the jaw on the right side. Pus was found in abundance, of a foul odor, and suggestive of bone necrosis. No distinct abscess cavity could be made out. The wound was thoroughly washed out with sublimate solution and a carbolized poultice applied. This procedure was followed by slight improvement in the patient's condition, but the temperature did not fall, and on the 12th he had recurring rigors. It was now considered that the seat of the pus was either in the upper cervical vertebræ or in the base of the cranium. The diagnosis was changed to post pharyngeal abscess on the 11th instant. The wound was washed daily and carbolic poultices applied. On the 14th a counter opening was made underneath the sternomastoid to secure more perfect drainage. On the 15th he had exophthalmia and great chemosis of the left eye, and on this date the swollen conjunctiva was punctured and the anterior chamber of the eye tapped with the keratome, but no perceptible improvement followed. On the 19th the right eye was affected in a similar way, and the chemosis subsided somewhat after puncture. His temperature on this date was 40.3° C. At no tim were there any focal symptoms or anything to locate disease in a special part of the brain. His condition grew worse, and he died at 3.40 a. m., June 19, 1895.

Necropsy (twelve hours after death).—Rigor mortis and post-mortem lividity present; body fairly nourished; incised wound on right side of neck, from which pus flowed.

Head: Scalp normal; no trace of fracture or contusion. On removal of calvarium and dura, general leptomeningitis was found, with effusion of lymph over the sulci and most marked on the convexity of the cerebrum. At the base the inflammatory change was not so marked. The vein and lymphatics in the Sylvian fissure on the right side contained pus. A spot of necrotic softening was found at the juncture of the crus and cerebrum on the basilar surface of the right side. A spot of the same character was found at the junction of the inferior peduncle of the cerebellum with the medulla. Pus was found in the lateral sinuses on each side and fibrinous clots, red and white, near the torcular Herophili. The cavernous sinuses were filled with pus, the dura dark in color, necrotic, and easily stripped from the bone. The sella Turcica was badly diseased, and the body of the sphenoid was infiltrated with pus. The orbital plates of the frontal on both sides were also necrotic and contained a great deal of pus. The change was most marked on the right side. No pathological changes were noted in the petrous or mastoid portions of the temporal bones. The tissues of the neck posterior to the ramus of the jaw on the right side were necrotic, and the entire ramus and a portion of the body of the inferior maxillary on that side denuded of periosteum. The ventricles of the brain contained a moderate amount of serum and presented nothing abnormal. Section of the cerebrum near the cortex showed numerous puncta vasculosa, but the tissue was firm, with the exceptions already noted. Chest: Pleuritic adhesion in right cavity at apex; none on left side. Lungs, normal; hypostatic congestion in lower lobes. Heart normal and valves competent; patches of atheroma in wall of ascending aorta. Abdomen: Stomach and intestines, liver and pancreas, normal; spleen small; kidneys slightly congested, but otherwise healthy; bladder large, distended, and there was a patch of venous congestion at the neck. Weight of viscera: Brain, 1,340 grams; heart, 400; left lung, 450; right lung, 740; liver, 1,945; spleen, 100; pancreas, 130; left kidney, 210; right kidney, 175; right supra renal capsule, 10; left, 15.

NECROSIS OF STERNUM AND VERTEBRÆ—LUMBAR ABSCESS.

A. J. N.; aged 25 years; nativity, Sweden; admitted to United States Marine Hospital, Baltimore, Md., June 14; died November 30, 1894.

History.—He was in the hospital here previously from August 23 to November 8, 1893. The first time he was admitted for necrosis of sternum. A previous operation had been performed in Sweden for this trouble, but a few days before he came to the hospital openings appeared in sternum (upper portion) and discharged whitish mucopurulent substance. Patient gave a history of syphilis about three years ago and complained of severe pain in back. A large abscess was found in the lumbar region, some pus had gravitated to the side, and near the margin of the quadratus lumborum muscle could be felt a large fluctuating mass. Two small openings in the upper portion of the sternum near sternoclavicular articulation were also discharging mucopurulent substance. There was some "angular deformity" of the spine (kyphosis) and severe pain in abdominal region, caused, probably, by disturbance of nerve supply of that region, resulting from necrosis of spine where said supply is given off. There was some cough and expectoration of blood and mucus. Physical signs negative. Lungs: Over lower part, dullness and increased fremitus, resonance increased above; rales characteristic of diffuse bronchitis could be heard over upper lobes of both lungs. Tumors of back were opened and curetted, but continued to discharge large quantities of seropurulent substance and broken-down tissue. Patient gradually grew weaker day by day. On the night of November 30, 1894, severe hemorrhage occurred from one of the openings in lumbar region, also some hemorrhage from mouth and nose, and death followed a few moments later.

Necropsy (*ten hours after death*).—Rigor mortis marked; body emaciated; weight about 100 pounds. Sternum found to be extensively necrosed; articulation between it and clavicle destroyed. Right lung very much congested and attached to thoracic walls by dense adhesions; lower lobe showed hard tubercular nodules, with caseous matter in the interior; left lung in about same condition as right. Heart was apparently normal. Kidneys normal. Spleen congested. Liver had undergone fatty degeneration to a considerable extent. Stomach and intestines very much distended with gas. Spine: There was considerable destruction of cancellated structure from second lumbar vertebra to the sixth dorsal, and the bodies of the vertebræ were diseased, especially the anterior borders, and masses of fungous granulations had invaded the intervertebral spaces, and in some places the disks were found to be almost entirely absorbed; in other places, where the destructive process had gone further, collections of pus were found, the result of the liquefaction of the disks and edges of the affected vertebræ. Cavities could be seen leading in different directions, the result of the gravitation of pus and its burrowing in different directions.

MULTIPLE FRACTURES OF BONES OF FACE.

H. J. T.; aged 33 years; nativity, Minnesota; admitted to marine ward, Cleveland City Hospital, Cleveland, Ohio, November 14; died November 14, 1894.

History.—Patient was struck in the face by a heavy timber at 4 a. m. on date of admission. When seen at 9 a. m. he was in a bad condition, but operation was immediately necessary. The bones of the face were terribly crushed, and the following required removal: The two nasal; entire vomer, with its cartilage; upper portion of both superior maxillæ, including the antrum of either side; a portion of the left orbital plate of the frontal, and possibly a portion of one molar. The right eye was enucleated. The patient nearly died on the table, but was resuscitated. He died four hours after the operation.

Necropsy (twenty hours after death).—Rigor mortis very marked. The unobliterated hypogastric artery was remarkably well shown upon opening the abdomen. The pericardium contained about 5 c. c. of clear serum. Heart normal, and contained some ante-mortem clots. Lungs somewhat congested. Stomach contained a small quantity of blood mixed with fluid contents. Intestines congested in places; otherwise normal. Liver, spleen, and kidneys normal. On turning back the scalp, a congested spot was seen over the frontal region. The brain and membranes were normal. There was no fracture of the skull.

R. M. W.

FRACTURE OF SPINE.

CASE 1.

C. P.; aged 30 years; nativity, Sweden; admitted to the United States Marine Hospital, San Francisco, Cal., August 20, 1894, suffering from fracture of the spine.

History.—Two days previously he fell down stairs, injuring his back in the posterior cervical and sacral regions. Examination revealed a deformity of the spine in the lower cervical region, with preternatural mobility; also complete paralysis and anæsthesia of the body below the seat of the injury, semierection of the penis, loss of function of the bladder and rectum, paralysis of extensor and flexor muscles of the fingers, of the flexores carpi radialis and extensors of the wrists, but no loss of sensation in the hands and arms. While in the hospital the patient suffered no pain nor impairment of his mental faculties. No surgical treatment was deemed advisable. The urine was drawn off with a catheter, and the bowels evacuated by means of enemata. Gaseous distention of the abdomen would at times interfere with respiration. On the eighth day after the injury the temperature rose suddenly to 41.4° C.; the patient soon became delirious, and died the following morning, August 27, at 9.45 o'clock.

Necropsy.—The post-mortem examination was held the same day, five hours later. Rigidity and lividity well marked; body muscular and well nourished. There was a fracture of the lamina and body of the sixth cervical vertebra, with laceration and compression of the cord. At the seat of the injury, anteriorly, the spinal meninges were adherent to the canal. The injury in the sacral region proved to be a mere contusion. All the organs were healthy save the bladder, in which there were evidences of acute cystitis, probably due to imperfect evacuation of the urine.

CASE 2.

V. S.; aged 20 years; nativity, Russia; admitted to the United States Marine Hospital at San Francisco, Cal., December 8; died December 21, 1894.

History.—Five days previous to admission to the hospital the man fell from a height of 35 feet and was stunned. The only visible injuries were an excoriation of the right foot and a slight swelling over the last two lumbar vertebræ. There was, however, partial sensory and motor paralysis of the lower extremities and incontinence of urine. The bowels remained constipated seven days after the fall, but when once opened they became uncontrollable. On examination the urine was found to contain mucus and blood. A diagnosis of fracture of the spine was made, although nothing but tenderness on pressure could be detected over the lumbar vertebræ. As there was evidence of pressure on the cord, suspension was resorted to without effect. While under observation the man complained of constant pain in suprapubic and iliac fossæ. His temperature never rose above 38° C.

Necropsy (*twenty hours after death*).—Body well nourished. Large bedsore over the sacrum, but no evidence of the swelling formerly noticed in lumbar region. A section of the spinal column was removed, revealing an impacted fracture of the body of the fifth lumbar vertebra, partially obstructing the canal and compressing the cord. There were also evidences of spinal hemorrhage and of extravasation of blood throughout the retroperitoneal space. The bladder was in a state of acute inflammation, complicated by pyelonephritis involving both kidneys. Other organs normal.

FRACTURE OF PELVIS AND LOWER JAW—PERITONITIS.

W. B.; aged 21 years; nativity, Canada; admitted to the United States Marine Hospital, Chicago, Ill., May 16; died May 27, 1895.

History.—Patient accidentally fell, after dark, from between decks into hold of vessel, a distance of about 12 feet. He probably struck on his feet and fell over on his left side. He was not rendered unconscious. Careful examination revealed a fracture of lower jaw at symphysis, made compound by a contused wound 1½ inches long below chin, and many minor contusions. He complained of pain in region of left hip, but left femur was found intact, and there was no crepitus or abnormal motion of pelvis. He seemed to be profoundly affected by the fall. His temperature remained at about 38° C. and pulse about 100, and his general condition seemed improved for the first three days. Following this the temperature rose rapidly to 40.5° C. and pulse to 136; there was some delirium, especially at night, and in general the symptoms were such as to lead to the conclusion that there had probably been a fracture at the base of the skull. The temperature remained between 38° C. and 39.5° C. and pulse about 130 and very weak. Condition became progressively worse.

Necropsy (*twenty-seven hours after death*).—Emaciated; pupils alike, dilated; several large ecchymotic areas in integument. Pericardial sac contained 20 c. c. of turbid fluid. On standing there was a clear, yellow fluid above, and the sediment consisted of leucocytes, mostly of medium size, some much larger, quite a number unipolar. Surfaces of sac showed no signs of inflammation. Heart, 280 grams, normal appearance, valves competent; adhesions at apex of left pleural sac, none on right. Both lungs of pink color, normal except some hypostatic congestion; left lung 450 grams, right 535 grams. The abdominal cavity contained no fluid and no adhesions. The peritoneum was almost entirely deep red to black in color, dull, without luster. The intestines appeared as if in an advanced stage of decomposition. The internal surface of intestine mostly deep red, otherwise normal. Moderate amount of normal fæces. Appendix 8 cm. long, attached except just at tip. Liver weighed 2,110 grams, dark brown, normal appearance. Gall bladder partly filled with bile; slightly constricted about one-half inch from tip; no concretions. Kidneys: Their pelves, the ureters, urinary bladder, and urethra examined and apparently normal; left kidney 150 grams, right 135 grams. Spleen, 255 grams; large, but normal in appearance. On removing the intestines a thickening along course of left psoas was noted; an incision was followed by bloody pus. Further examination revealed a comminuted fracture of pelvis. A nearly square fragment of bone, measuring 4 by 5 cm. and 1.5 cm. thick immediately over the head of the femur, was entirely separated excepting the periosteum. This fragment embraced a nearly square area of the upper surface of the ilium, a small portion of the acetabulum, and a diagonal split from the latter backward and outward to the brim of the true pelvis. Beneath the anterior and posterior extremities of this fragment were fractures extending downward and backward, one terminating just posterior to the tuberosity of the ischium, the other at about the middle of the greater sciatic notch. Head (examined first), no evidence of contusion on scalp. The skull was examined critically for fracture, but nothing found. Dura normal, more adherent than usual to skull, attached to pia by pacchionian bodies. The pia was markedly congested on vertex, alike on both sides of median line. The brain weighed 1,360 grams; no hemorrhage; no excess of meningeal or ventricular fluid; no abscess. Appearance normal throughout.

S. D. B.
J. B. H.

CONTRIBUTED ARTICLES.

CONTRIBUTED ARTICLES.

Following are articles upon hygienic, surgical, and medical subjects contributed by the several officers named. Attention is particularly invited to the paper by P. A. Surg. W. D. Bratton entitled, "Arid region sanitation for tuberculous patients of the Marine-Hospital Service." My personal experience with tuberculosis in several of the marine hospitals long since convinced me of the necessity of a sanitarium located on Government reservation in that portion of the United States which combines the proper latitude, altitude, and freedom from moisture—three conditions most favorable for the recovery of tuberculous patients, and preliminary inquiries concerning the feasibility of the proposed plan have been made by myself. It is believed that a number of patients, whose cases under existing conditions are hopeless, would recover in such a sanitarium. The requisite amount of ground required could doubtless be found in reservations already possessed by the Government. The buildings would not necessarily be expensive, but a large item in the cost would be the transportation of patients from the several marine hospitals. This expenditure, however, might be provided for by an increase in the receipts from the tonnage tax previously referred to; or direct appropriation might be made for the cost of transportation. It is hoped that the proposed measure for the relief of this large class of patients, and this practical method of assisting in suppressing this widely distributed and contagious disease may be carried into effect by necessary legislation.

Attention is also particularly invited to the article entitled, "Treatment of deck hands on steamboats on the Ohio and Mississippi Rivers," by Asst. Surg. E. K. Sprague. It is earnestly hoped that legislation will be enacted by Congress for the relief of these boatmen, who are seamen within the meaning of the United States statutes.

FEMORAL ANEURISM, COMMENCING IMMEDIATELY UNDER POUPART'S LIGAMENT, TREATED BY DIGITAL COMPRESSION—RECOVERY.

By Surg. Henry W. Sawtelle.

Seaman J. M.; aged 28 years; nativity, Newfoundland; admitted to the United States Marine Hospital, port of Boston, Mass., September 15, 1894. He complained of a swelling in the left groin, which was at times painful and pulsated. The patient was under the impression that it was a bubo, and applied for treatment for that disease. Inquiry revealed the fact that the tumor first made its appearance after a hard night's work at the wheel in a heavy sea about sixteen month's ago. While at the wheel he was obliged to stand in such a position that he had to brace himself with his left leg, subjecting it to a considerable strain. Since it was first observed the tumor had increased in size.

Examination of the parts revealed a tumor, pulsating very forcibly and perceptibly, so much so that attention was directed to it as soon as the parts were exposed. By palpation it was found to have an expansile pulsation. The tumor was about the size of a hen's egg, of a fusiform shape, and extended up under Poupart's ligament, probably involving the extreme lower end of the external iliac. Pulsation was stopped by pressure on the artery above. The diagnosis of aneurism of the femoral artery was at once made, and a course of iodides prescribed, with perfect rest in bed.

When questioned as to previous history the patient acknowledged having had syphilis and gave the following history: During the fall of 1887 he had a chancre, which came on a month and eight days after exposure. The sore healed twenty-three days thereafter while at sea. He commenced to have various symptoms, such as an eruption over the body, neuralgia, and pain in joints, which disappeared readily under treatment and he resumed his vocation.

I saw this case for the first time September 22, and at once ordered compression of the artery on the proximal side of the aneurism, and detailed Dr. Charles R. Robins, interne, to superintend the treatment, and the successful termination of the case was due to his watchful care.

Prior to the adoption of digital compression, attempts were made to control the circulation by means of a tourniquet variously applied, and also a roller bandage used as a compress over the artery just above the tumor, using a relay of convalescent patients to hold it in place. But these attempts proved futile, only tending to make the parts very sore, and a very slight coagulation, if any, was effected. It was decided to desist from further attempts until the tenderness had disappeared, giving, in the meantime, veratrum viride to control the circulation, and elevating the limb on pillows.

On October 4 all soreness gone; compression was commenced with the thumb directly over the proximal side of the sac. The thumb of one hand made pressure on the artery as it passed over the brim of the pelvis, and this thumb was strengthened by pressing on it with the thumb and different fingers of the other hand. Six centigrams of morphine were administered hypodermically before commencing the operation.

At 1.30 p. m., after two hours, no pulsation could be distinguished. Pressure, however, was continued until 6.20 a. m., October 6, making forty three hours of pressure, forty-one of which were after pulsation had ceased. Three relays were used, the last of hospital attendants. The patient was catheterized during this time, as it became necessary. Nineteen and a half centigrams of morphine were administered hypodermically. This relieved the pain and caused patient to sleep, and made the case more manageable. No bad effects were produced further than a slowing of the respiration. After compression was stopped the thigh was brought up to right angles to the body and held in this position with a bandage. When the effects of the morphine had passed away drop doses of aconite were given and the iodides were continued. The patient was kept on low diet and not allowed to exert himself or leave the bed.

On October 27 the patient was allowed to walk about for the first time after being three weeks in the recumbent position, and expressed himself as feeling entirely recovered from the troubles incidental to the affection.

He was discharged from the hospital October 29, 1894, at which time the parts were examined and the tumor was found to be about one-half its former size, and the clot appeared to be thoroughly organized. No pulsation of the femoral, popliteal, or tibial arteries could be detected, but the collateral circulation was thoroughly established, as evidenced by the warmth and absence of œdema, and the full usefulness of limb.

The history of this case teaches that pressure can be more successfully maintained by the thumb, assisted by the other hand, than by the intervention of any appliances, and the pressure should be persisted in until the collateral circulation has been fully established by the enlargement of the arteries entering into it. Hence it was deemed advisable to continue pressure for some considerable time after pulsation in the sac had ceased.[1]

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[1] Dr. C. R. Robins writes under date of December 22, 1894, as follows: "I saw to-day the patient who was treated by you for femoral aneurism about three months ago, and I am happy to be able to report that the clot which was formed under treatment still remains firm and solid and has decreased somewhat in size. No pulsation in tibial or popliteal arteries, but the leg seems to be perfectly nourished."

Without entering into a discussion of the varieties, etiology, symptoms, and pathology of aneurism, it is nevertheless interesting to note briefly the history of the principal forms of treatment that have prevailed from an early period up to the present in connection with my case just narrated. This résumé has been compiled mainly from American surgical works.

The only operation for aneurism known to the ancients consisted in the laying open of the tumor by incision and after turning out its contents applying the hot iron to the extremities of the affected artery so as to seal up their mouths. The result was that almost every patient died from hemorrhage. This practice continued up to the third century, or until the time of Antyllus, who adopted a more rational method. He freely opened the tumor, cleared out its contents, and tied the artery above and below. The sac was then stuffed with charpie to promote suppuration and occlusion, the object being to heal the wound from the bottom. Occasionally the tumor was extirpated. The result of this operation was most disastrous, though it has again received attention of late. Many perished from the effects of inflammation, some of secondary hemorrhage, and not a few from the shock of amputation made as a last resort. To afford the sufferer a better chance of recovery the removal of the limb was often the only expedient thought of for his relief. The operation of Antyllus was performed by Morel, of Paris, in the seventeenth century in a case of carotid aneurism; by Keyslere in 1744 in a case of popliteal aneurism; and by Sabatier not long afterwards in a case of femoral aneurism. Mr. Syme employed it successfully in aneurism of the common carotid axillary, and iliac arteries, the first in 1857.

In 1710 Anel devised and performed a new operation. He ligated the artery immediately above the tumor, but did not open the sac or tie below. The operation was successful, though the credit of presenting the new principle underlying this operation of ligating the artery on the cardiac side is given to John Hunter, who investigated the subject in 1785, and maintained that the cause of failure of Anel's method was that the artery was tied at a point where it was diseased and hence the ligature came away too soon and secondary hemorrhage was generally the result. He accordingly ligated the vessel at a point above the sac where it was healthy, and thus diminished the risk of hemorrhage. The death rate after ligature by the Hunterian method, according to Gross, is 41 per cent. His table of 695 cases, which included the large vessels, shows that 285 died. In case of the femoral artery the table gives 278 cases with 105 deaths, a percentage of 37.76.

Brasdor ligated on the distal side in case of aneurisms of the carotid, external iliac, etc., and Wardrop tied the artery or one of its branches on the distal side of the sac. Of the 84 cases reported 42 died. "The majority of the patients who recovered were greatly benefited; and in not a few, life was prolonged for several years."

It has been found that aneurisms have recovered spontaneously, as shown at post-mortems, the sac having in some instances pressed upon the artery and thus retarded or cut off the circulation. In other instances the sac has been found filled with a laminated clot, where there appeared to be no evidence of pressure whatever.

Valsalva suggested, for vessels inaccessible to the ligature, treatment by absolute rest in bed, with diet reduced to the minimum amount compatible with life, and an occasional venesection, together with the exhibition of certain drugs to control the circulation and favor coagulation. But this method has not been known to effect any cures.

Professor Tufnell's modification of the above method consists in the use of three means, viz, rest, regimen, and remedial agents. He demonstrated the powerful effect which the recumbent position has upon the force and frequency of the heart's beat. He reduced the diet, but not to the verge of starvation, and thus secured a greater plasticity of the blood as well as diminished the action of the heart. Besides the remedies to induce sleep and control pain, he administered compound jalap powder at intervals to withdraw serum from the blood and favor coagulation.

Hey improved this treatment by substituting a saturated solution of magnesium sulphate for the jalap. Valsalva's measures tended rather to increase the fluidity of the blood than otherwise. Under those of Tufnell it became more plastic. But to the strict recumbent position which he insisted upon is mainly due the large percentage of cures which he obtained. Of his 10 cases 7 were cured and 3 died during treatment.

Instrumental compression has long been employed in many cases with varying results. Up to the time of Bellingham the results were anything but satisfactory. The instruments were generally clumsy contrivances, which hurt and injured the patients a great deal. The idea prevailed among practitioners that to be successful the instrument was to be applied firmly and steadily so as to arrest the circulation and cause adhesion of the sides of the artery. "One practitioner followed another blindly because it was occasionally successful in his hands, and not that anyone had been so fortunate as to lay down broad and definite rules of action." Bellingham, in 1843, pointed out that pressure should be exerted on the cardiac side of the tumor over a sound portion of the vessel. Thus was effected a complete revolution in the treatment of aneurism, yielding results which are, says Gross, highly flattering, and contrasting most favorably with those of the Hunterian deligation. There is but little if any danger from this mode of treatment, and in the event of failure more radical measures may be substituted.

Vanzetti first proposed digital compression in 1846, and a year later Professor Knight, of New Haven, cured a case of popliteal aneurism in forty hours by this mode. Of 188 cases analyzed by Fischer there were 104 recoveries, 75.3 per cent, with only one death caused by gan.

grene in a man 71 years old. Cure is obtained in a much shorter time by this method than by any other, except forced instrumental compression, the greatest objection to it being the difficulty in securing a sufficient number of assistants.[1]

Direct compression of the denuded artery was practiced during the close of the last and commencement of the present century by many Italian, French, and English surgeons. This consisted in exposing the artery and applying a temporary ligature over a cylinder of some suitable material and removing it after the sides of the artery were supposed to be fairly adherent to each other. This was occasionally followed by violent inflammation, secondary hemorrhage, and death. The operation, modified to lessen these dangers, is performed at the present time, but its value is undetermined.

Forced compression with an elastic bandage, where the aneurism was located in the extremities, has been recently tried. This acts to produce a complete stagnation of the blood in the limb by shutting off the collateral circulation as well, and favors a rapid coagulation. Of 70 cases so treated 39 were cured and 4 died, the percentage of recoveries being 55.6. The chief danger is from gangrene. Forced flexion was first practiced successfully by Thierry in 1852. It is very tedious, requiring from three to six weeks, and in a number of cases has failed signally.

Galvano-puncture was suggested by Benjamin Phillips in 1829, but was not practiced until about 1850, when it was advocated by Petrequin. It is exceedingly painful and very hazardous, tending not only to cause inflammation and suppuration of the sac, but also to cause serious systemic disturbance. The ultimate effects of the operation are very uncertain, though a few cures have been reported and many cases benefited.

Injections into the sac of the aneurism with a view to coagulating its contents have also been tried in modern times, but the results have not been favorable, only a few cures having been effected. The risk of inflammation, suppuration, and gangrene is so great that the method is considered hardly justifiable.

Subcutaneous injection of ergotine was first introduced by Langenbeck in 1869. This consisted in the injection of ergotine under the skin just over the sac, the object being to induce contraction of the organic muscular fibers. In two cases reported by him, one (of the subclavian) showed improvement with considerable diminution both in the size and pulsation; the other of the radial artery, the size of a hazelnut, was cured after a single injection. This method has been successful in only a very few cases. The earliest attempt to secure coagulation of the contents of an aneurism by means of the introduction into the sac of some foreign material as horsehair, fine wire, catgut, etc., was made in 1864 by Mr. Moore, of London. Dr. Levis, of Philadelphia, and others have repeated the same experiment, but with only a few successes reported. To be sure the cases were desperate ones that did not admit of the adoption of the compression methods or the use of the ligature.

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[1] Surgeon Irwin, of the Marine-Hospital Service, treated successfully a case of popliteal aneurism by digital compression, which appeared in the Annual Report of the Service in 1891.

Surgeon Sawtelle, of the Marine-Hospital Service, successfully ligated the femoral artery at Scarpa's triangle, for a traumatic diffused aneurism of the popliteal artery, in 1889. (See notes of the case in the Annual Report of the Service for 1890.)

Acupuncture was suggested by Velpeau and tried in 1831, and Mr. Phillips was successful in a case of carotid aneurism treated by it. It has been tried by other surgeons, but generally in conjunction with some other method as proximate compression in Macewen's case of ilio-femoral aneurism. In view of this fact and the limited experience had with this method, it is difficult to estimate its value.

Macewen's method consists in irritating the lining membrane of the sac by means of a needle, the object being "to induce infiltration of the parietes with leucocytes and a segregation of them from the blood stream at the point of irritation." The amount of irritation should be merely sufficient to cause a reparative exudation, and should be distributed as evenly as possible over the entire surface. Excessive irritation should be avoided, as it may lead to softening and rupture of the sac.

A unique method was suggested by Sir William Fergusson in 1852. It consists in manipulating the sac by forcible squeezing with the intention of breaking up its fibrinous contents in order that some of the fragments might be carried to the distal extremity of the artery, and, by plugging it up, effect a radical cure. In two cases treated by Fergusson by this method one was successful, but recovery was not effected until after nearly two years. Successful cases have also been reported by Teele, Blackman, and Page, of England, when conjoined with digital compression. Objections to this operation are, first, its uncertainty, as in one of the cases of Fergusson, although the distal artery was successfully plugged, the sac remained hollow and continued to extend; and secondly, its danger, especially in the arteries of the neck, where an embolus is very liable to be carried to the brain.

At the present day many surgeons prefer for external aneurisms, first, digital compression on the proximal side of the tumor, and in case of failure ligation of the vessel according to Hunter. Internal aneurisms, or those which admit of neither of the preceding methods, are treated by the method of Valsalva as modified by Tufnell. Treatment by galvanopuncture, massage or kneading, flexion, the introduction of horsehair or wire into the sac, acupuncture, and the injection of coagulating substances into the sac or the tissues around it, is seldom employed.

ARID REGION SANITARIUM FOR TUBERCULOUS PATIENTS OF THE MARINE-HOSPITAL SERVICE.

By P. A. Surg. W. D. BRATTON.

It was in the year 1798 that the Congress of the United States first recognized the expediency and propriety of caring for seamen who became sick or disabled in the pursuit of their calling. The National Legislature was moved to take action in this matter, not through the influence or by the appeals for help of the seamen themselves, for they alone of all the classes of our citizens have never begged for anything nor sought to influence Congress in their own behalf. On the contrary, the nation's representatives were stirred by public opinion in seafaring communities, and in the commercial centers on the Great Lakes and rivers of the country, where sympathy with the seamen was naturally strongest, and where a knowledge of all the ills to which he was subject was universal.

These people recognized fully that the seaman had to give up the hope of a home and of accumulating a competency for his old age; that his habits of life were to some extent necessarily demoralizing and peculiarly unfitted him for making his living in any other way; that from the nature of his employment he was exposed to hazards of fortune, and risks to health and life, to which the landsman is a stranger; that finally in disease and disabling injury he was far removed from the help and sympathy of family and friends. These things appealed strongly to the humanity and sympathy of seafaring communities.

But there was not wanting also an appeal to their sense of justice, when they reflected that these men had devoted their lives to the maintenance of internal communications and consequently to the building up of the widely separated regions of this vast country, at a time when there were no railroads, when malarial and infectious diseases were rife, and, consequently, when this work was more arduous and more perilous by far than seagoing life now is. It was also recognized that these men gave up all the ties that, to a landsman, makes life worth living, in order to maintain our relations with the rest of the world in time of peace, and that in time of war on them alone we relied to protect our coasts from foreign invasion. When, therefore, to these considerations was added the moving spectacle of seamen cast ashore by scores and hundreds, to suffer or die in want and neglect almost absolute, it is not strange that strong appeals were made to Congress in their behalf, and it is not hard to understand why these appeals met with so prompt a response.

It is true, then, that nearly a century ago the National Government undertook to see that sick and disabled seamen of the merchant marine were properly cared for. It is equally true that from that day to this the Government has never receded from the position thus assumed, but has moved forward to positions successively stronger. At first it prescribed a tax to be collected from the seamen themselves and disbursed at the ports where collected for the benefit of sick seamen; then it began to make good, by appropriations from the National Treasury, any deficiency in the tax so collected. Also, appropriations began to be made in the same way to build and equip marine hospitals. The medical service for the seamen was first organized, then reorganized, and from local political appointees its members became a corps of commissioned officers, whose head became the head of the bureau. Finally, the direct tax on seamen, long insufficient, was abolished altogether, and the great fabric of the Marine-Hospital Service was relieved from its dependence on irregular appropriations by the assignment to it of the proceeds of the tonnage tax as a regular fund. And with this the Government took the last step in the policy to which it had committed itself in the beginning, and, after a hundred years of steady progress toward that end, it assumed the entire expense and complete responsibility for the care and treatment of sick and disabled seamen under its flag.

In view of the fact that all this was brought about altogether without pressure or petition from the seamen themselves—rather against the will of some of them—and was due entirely to the active efforts of the general public, it is fair to assume that the present relations of the Government to the seamen represents the settled policy, not only of the Government, but of the nation.

All that has been said is fully borne out by the history of the Marine-Hospital Service and by the writings of its various officers. And it is essential to understand thoroughly the obligations and responsibilities which the Government has assumed, for then only are we in a position to indicate wherein it has failed to discharge those obligations.

It is the object of this paper to point out one signal instance of such failure, most complete, and most disastrous in its results, and that is, the utter lack of proper provision for the treatment of cases of pulmonary tuberculosis. This is felt by every officer in the Service; and the following extract from an article by P. A. Surg. J. O. Cobb (Annual Report of the Marine-Hospital Service, 1893, vol. 1, p. 57) is no extravagant statement of the situation:

> The great number of tuberculous cases demands some prompt action by the Government to relieve the hospitals, as well as to move the patients to a locality favorable for their recovery. The general hospital is not the proper place to treat these patients even though there were room enough to isolate them. For climatic conditions also the various hospitals situated in different parts of the country are not conducive to the comfort or eventual recovery of these cases. As an actual fact nearly all seamen with tuberculosis of the lungs die. These cases are discouraging

> to treat even in an equable climate, but far more so when the climatic conditions are (more) unfavorable, and nearly every station in the Service is unfavorably situated in this respect. To emphasize the fact of the great fatality of the disease more strongly take the Service statistics for an average year, say, 1890, and we find that 756 cases of tubercle were treated; 2 recovered (the 2 recovered were local tuberculosis), 327 improved, and 113 died (20 per cent), 86 being on hand at the end of the fiscal year. That is a large percentage of deaths, too large; and these statistics are even then unreliable to this extent: Many of the cases reported as "improved" finally return or go elsewhere, and are recorded as new patients, while, in fact, they are old ones. The same case goes out "improved," tries to work, gets worse, goes into another hospital, is reported as a new case, possibly goes out again as "improved," and so on until he finally dies. This is the average history of the consumptive patient. I should say that, taking into consideration this fact, the percentage of deaths yearly is nearer 35 than 20 per cent. My experience has been that nearly all of these cases die in the hospital finally.

The writer then goes on to speak of the successful results attained in the Army and Navy Hospital for certain chronic diseases, and suggests that the Marine-Hospital Service should have two hospitals, one in the East and one in the West, for the segregation and treatment of tuberculous and other incurable chronic cases.

From the extract quoted above, and from the experience of every officer in the Service, it is obvious that the present mode of treatment of consumptive patients of the Service is a disastrous failure. It is no less obvious from what has been said by way of introduction that it is the duty of the Government, through the Service, to adopt any other method which experience has proven to be materially superior to that in vogue. And that the climatic treatment of tuberculosis is the proper treatment, the only established method of treatment that offers a reasonable hope of success, will be denied by no physician at this day. In favorable cases the percentage of cures in the best climates is very high; in our marine hospitals it is practically zero. There is no physician, no intelligent layman even, in the United States who does not know that there are thousands of healthy and useful men on the plains of Colorado, New Mexico, and Arizona who went there, many of them, without the hope of recovery. There can be no manner of doubt, then, that it is the urgent duty of the Government to provide a suitable camp, or camps, for the consumptive patients, and that these should be located in the most favored regions of the country.

The exact location best suited for the purpose may be a matter for careful inquiry; but there can now be no doubt whatever that a serious mistake will be made if any other region should be selected than the arid midcontinental region of the United States. The day when "equability" of climate was considered a sine qua non is long since past. Likewise the profession is beginning to recognize that the factor of cold as a tonic element in climate may be unduly insisted upon. The mass of the medical profession, it must be admitted, appear to be divided into two camps—the one, representing the most advanced opinions, contending for a high, dry, and cold climate; the other, and more conservative body, contending for a mild and equable climate. Both, however, agree that a cold and moist climate is the worst possible.

The agreement of all parties to the dispute on this last proposition is highly significant, and offers a key to the solution of the whole difficulty. It is that either cold or moisture in any excess is injurious, and that both parties, as usual, are partly wrong and partly right. In so far as they advocate elevation and dryness, the adherents of the high, dry, and cold theory are right; and the advocates of the mild and equable (moist) climates are right in urging mildness. The most desirable region, therefore, is high, dry, and mild.

This deduction I believe to be fully warranted by facts and sustained by a steadily increasing number of the most advanced men in the medical profession and most disinterested, perhaps.

When we come now to apply this deduction practically, we find that most of the generally advertised regions fail to come under the definition "high, dry, and mild." The South Atlantic States and California show a relative humidity of the air and a rainfall, one or both, entirely too great. The Adirondacks and Colorado are subject to an intense cold, a harshness of climate, and a violence of weather changes at certain seasons which are certainly objectionable.

The only other part of the country where we may reasonably expect to find the desired conditions of climate is the southern end of the elevated, dry, midcontinental region, viz, in New Mexico, Arizona, western Texas, and southwestern Kansas. And here, if we may trust the reports of medical officers of the Army posts, of the Weather Bureau, and certain equally disinterested reports of physicians who have had personal experience of many climates, all the conditions required are to be found. Between Santa Fe on the north and Tucson and El Paso on the south the desired conditions of climate can be found for every consumptive who is not hopelessly affected and for every month of the year.

Let us suppose that a site has been selected, somewhere in central New Mexico, for instance, where the elevation is 5,000 feet. (Another station may be necessary at a lower elevation for such advanced or complicated cases as may not safely be sent to higher levels.) To this sanitarium should be sent incipient cases and all cases not far advanced and in fairly good condition. The sanitarium may very properly be modeled on the plan of the typical army post of this region, for it would be difficult to devise anything better. And the discipline and drill or other exercise may be largely military in character. The camp should be near a large town or a good market and near enough to the mountains for those who need it to camp out at higher levels a few weeks in midsummer.

With the perfect control of such a number of cases through a term of years, some valuable progress ought to be made in the study of tuberculosis, and the value of the climatic treatment might be more accurately determined than it has hitherto been possible to do. Besides the large percentage of cures in young subjects and in incipient or otherwise favorable cases, an arrest of progress, which with care will ultimately lead to the practical cure of "permanent quiescence," may be obtained in many others These men can then be discharged and become self-supporting citizens of the country. The subject might be pursued further on this line, but this is not here necessary.

Heretofore we have considered this whole matter in its relation to only one of the functions of the Marine-Hospital Service, that of the care and treatment of sick and disabled seamen. But let us now consider it in relation to another and equally important function of that Service—its duty of enforcing and administering the national quarantine laws and regulations, and preventing the spread of infectious diseases. We shall find that the arguments suggested from this point of view are scarcely less obvious or less conclusive than those already adduced.

The Marine-Hospital Service is the sole hygienic agent of the National Government, and upon it devolves the duty (in so far as this may be a function of the General Government) of enforcing the principles and practice of preventive medicine. It can not be denied that the duty has been well done, very well done, considering the nature and number of the difficulties to be overcome, the lack of funds at times, and the insufficient number of medical officers always. Emergencies have been met with energy and success, and various epidemics of cholera, yellow fever, and smallpox have been averted or suppressed. The Surgeon-General and individual officers have done service that was always effective, often brilliant, and sometimes heroic.

It must, nevertheless, be admitted that the energies of the Service have been unduly absorbed in the combat with epidemic diseases. But for this the Service can not fairly be blamed, for the imperious demands of a panic-stricken public and of the Government itself had to be met. It is high time, however, for the Service to be accorded, or to demand, the leisure and the means to consider other hygienic problems of equal, if not so menacing and spectacular, importance—problems, moreover, which fall directly within the province of its prescribed duty; and of these the most important is the question of the limitation of the spread of tuberculosis, a disease with which, in the United States alone, 300,000 suffer every year and 100,000 die. This means that 1 in every 200 of the 60,000,000 people of this country is a recognized invalid from the disease. To what extent the disease is prevalent in the merchant marine may be judged by the extract already quoted, which states that 756 cases were treated by the Service in 1890, or 1 in 66 of the 50,000 patients of an average year. It is doubtful whether more than 150,000 seamen look to the Service for medical assistance; and if this be true, it would appear from the above that 750 cases existed among 150,000 men, about the proportion of cases, 1 to 200, which we have already found to exist in the country at large. If this be true, or approximately true, it is not a condition of things that the officers of this Service can view unmoved. They can not afford to exert anything less than the most strenuous efforts to bring about a radical change in a state of affairs under which it is possible for an army of men under their special charge, nearly all young and hardy, and engaged in a pursuit that should be singularly exempt from the disease, to show, nevertheless, a proportion of cases of consumption equal to, or one-half, or one-third the proportion among the general public of all ages and conditions. I have not at hand the series of annual reports of the Marine-Hospital Service, and these figures may not represent the annual average. If they are 100 per cent above it they are still too large; and certainly there are several hundred cases treated at the various stations of the Service each year. Let us consider what this means.

It means that along the entire Atlantic and Gulf coasts of the United States, on the Pacific Coast and along the Great Lakes, and throughout the valley of the Mississippi, in every marine hospital in the country, there are daily admitted foci of tubercular infection, to which victims of influenza, convalescents from typhoid fever, and the sufferers from every exhausting disease are exposed. It means that these tuberculous subjects either remain for months or years as sources of infection in the hospital wards until relieved by death, or that, temporarily improved, they go forth to spread infection in the streets of the town, and in the generally foul and ill-ventilated boarding houses where seamen herd together. It means that if they ship again, as they usually do, they are crowded with other sailors in a narrow, damp, and dark forecastle, where the sunshine never penetrates, where cleanliness is rare and ventilation unknown, and where the conditions for the spread of infection are perfect. It means that the ranks of the tuberculous are thus recruited where it would be easiest to prevent the spread of the disease, where it ought to be prevented and where the means of prevention are at hand.

Fishermen, and men who ply their calling on the sea in open boats, are notoriously exempt from tuberculosis and lung diseases generally. Merchant seamen are by no means so free from these troubles. Why is this? It is mainly because there is no forecastle in open boats where men live and sleep together, packed like sardines, and where a single consumptive can make it dangerous for all the crew.

Let us suppose, now, that each consumptive seaman, as soon as recognized, is forbidden to ship again. He is sent, if a recent or favorable case, to the marine-hospital sanitarium in the arid Rocky Mountain region; or if an advanced and hopeless case, to the Service sanitarium for such cases at San Antonio, for instance, where the elevation is slight, the climate mild, and the air comparatively dry. The vessel from which he is taken is immediately inspected by a medical officer, any other infected seaman removed, and the forecastle and other parts of the vessel probably infected are thoroughly disinfected.

The master of the vessel is required to notify the marine-hospital authorities of any probable case of consumption that may at any time develop; and an act of Congress may make this mandatory under penalty prescribed. Laws in relation to scurvy already exist.

The result will be that our general hospitals will be free from introduced infection; that the sailors' boarding houses will no longer be contaminated; that seamen will no longer be poisoned as they sleep in their bunks aboard ship. It is too much to expect that the measures advocated will bring about total extinction of tuberculosis among seamen, for they are exposed to slight risks in quarters that can not be reached; but the number of cases will be so greatly reduced as to add another to the list of conspicuous public services already performed by the Marine-Hospital Corps.

Moreover, the results attained and the methods employed will be a valuable object lesson to the general public, and will add strength and definiteness to the movement, already so general and earnest, which has for its object the limitation or extinction of pulmonary tuberculosis. Finally, the Service will have the satisfaction of discharging an obvious and urgent duty, which circumstances beyond its control have caused it to neglect and overlook too long, far too long.

To carry out the measures outlined in this paper, an appropriation by Congress will be necessary. There should be no difficulty on that score; a simple and earnest statement of the case ought to carry enlightenment, and with it conviction, to the mind of every Member. It is indeed difficult to believe that a Government which has made, and a nation which has approved, liberal appropriations for the study and extermination of the diseases of cattle belonging to a class of people who advance no claim for help in their own ailments, will refuse the comparatively insignificant sum asked by its chosen agent, the Marine-Hospital Service, to enable it to perform the double duty expressly enjoined upon it—of caring for diseased seamen, and of preventing the spread of infectious diseases. And it is hardly possible that such an appropriation will be grudged, if Members will reflect that it is intended for the relief of seamen, otherwise doomed to certain death, whom the Government has cared for, and reiterated its intention to care for, during the last hundred years.

In conclusion, the writer may safely affirm that the need of some such sanitarium as that herein described is felt by every officer in the Service. And, although it is a somewhat delicate matter for an officer to speak for the head of his corps, he may yet venture to state what is generally understood, viz, that the necessity of this relief measure is felt by the present Surgeon-General in a degree fully commensurate with his great responsibility; that he was the first to suggest and advocate the idea; and that it is, therefore, peculiarly appropriate that he should be the means of carrying it into effect; if, as is fully believed, the time is now ripe for doing so.

ANTERO-POSTERIOR CURVATURE OF THE SPINE.

By P. A. Surg. R. M. Woodward.

C. H. H. (colored); aged 23 years; admitted to the marine ward, Cleveland City Hospital, Cleveland, Ohio, January 17, 1894, and has been under treatment constantly since.

Patient had been complaining for one year before admission, but knew of no cause for his ailment. A swelling first appeared over the third lumbar vertebra, attended with some pain and a general weakness. This disappeared after three or four months. About the time of its disappearance another swelling was noticed in the right groin, partly above and partly below Poupart's ligament.

On January 24, 1894, P. A. Surg. S. D. Brooks operated on the psoas abscess of the right side, making the first opening in the upper portion of the lumbar region, with a counter opening in the groin of the right side, just above Poupart's ligament. The pus cavity was irrigated daily. On June 29, 1894, I operated on the psoas abscess of the left side, making the incision in the lumbar region directly opposite the one made by my predecessor, liberating a quart of pus. The counter incision was made in the back of the thigh, just below the gluteo-femoral crease, to which point the abscess had extended. A solution injected at one opening appeared in a stream at the other. Irrigation of these cavities has been continued, at first daily, later every second day; for this purpose an antiseptic solution was at first employed, since then distilled water.

On July 18, 1894, a plaster of paris jacket was applied by the hammock method of Davy. This was slit up the front and laced, so as to allow of dressing of the wounds. Two days later he was allowed to get up with crutches, the first time he had been off of his back in six months. After a time crutches were discarded. The patient is about constantly, walks a long distance, runs, dances, and mops the floor. He is able now to do light work without the jacket, but this is attempted only at intervals. The jackets are renewed at intervals of about three months. This is made necessary, not so much by the cracking of the plaster as by the patient's rapid increase in weight. His first recorded weight after applying the first jacket was 117 pounds. This weight has steadily increased until he now weighs 171 pounds, a gain of 54 pounds.

His constitutional treatment has consisted mainly of cod-liver oil and iron in various combinations. The sinus on the right side yet permits a fluid to be washed through from one opening to the other, the caliber being apparently about the size of a goose quill. The sinus on the left side has entirely closed below, and to within a few inches of the lumbar opening. The discharge is almost nil. The sinuses give promise of ultimately closing entirely.

The hammock method of applying the jacket possesses all the virtues of the vertical suspension of Sayre, while at the same time the patient is lying prone, the most comfortable position a case of Pott's disease can assume; and if necessary, he can lie there for hours, until the plaster has firmly set, and there is no danger of breaking the cast.

SURGICAL, MEDICAL, AND SANITARY NOTES.

By P. A. Surg. G. T. VAUGHAN.

I have the honor to make the following report of my recent visit to Europe:

October 24, 1894, I arrived in Bremen. Dr. Keenan, United States consul, took great pains to show me the facilities for detention and inspection of emigrants to the United States, including quarters, bathing apparatus, and steam disinfecting chamber. The consul informed me that he had just witnessed the slaughter of eight or ten horses for food, and that the number of these animals annually slaughtered in Bremen amounted to about 1,600.

The "Dome" is an interesting structure, not only on account of its thousand years of existence, but from the peculiar properties possessed by an anteroom, namely, that of preserving animal bodies indefinitely. This room, built of stone, is some 30 or 40 feet in length, 15 or 20 feet wide, with an arched ceiling about 15 feet high, and the air felt damp and cool. Its peculiar properties were accidentally discovered about four hundred years ago, when a body placed there was found, after a long time, well preserved. Since then other bodies have been added, until there are fourteen in the chamber. The bodies are not specially prepared before being placed in the chamber. Every year the bodies of animals, as cats, dogs, and birds, are placed here in order to see if the preserving property is still retained, and they simply dry up without odor.

In Hamburg I had the pleasure of meeting Dr. Dunbar, director of the Hygienic Institute, and Mr. Schede, a former pupil of von Volkmann and surgeon in charge of the New Eppendorf General Hospital, a new hospital of 1,800 beds, on the pavilion plan, well fitted with all the apparatus for the modern treatment of diseases and injuries. I saw Mr. Schede do an operation, original with himself, for the radical cure of varicose veins of the lower extremity, which he told me he had done thirty or forty times, and in every case with a satisfactory result. The operation consists in making a circular incision, as if for amputation, 10 to 15 cm. below the knee, dividing skin, fascia, and all the superficial veins down to the fascia covering the muscles, then ligating both cut ends with catgut, usually requiring some thirty or forty ligatures. An Esmarch's or Martin's rubber bandage is used to make the limb bloodless.

On arriving in Berlin I decided to matriculate at the university in order to take courses under Professors von Bergmann, Virchow, Waldeyer, and Casper, besides visiting the clinics of Professors Martin, Bardeleben, Hahn, Sonnenberg, Olshausen, and Dr. Schleich. Professor von Bergmann performed many operations, holding a clinic from 2 to 4 o'clock four times a week. Two operations on the rectum and two for congenital dislocation of the hip deserve notice.

The operation on the rectum consisted in resection of a portion just above the anus for carcinoma by making a flap consisting of the lower portion of the sacrum, muscles, and skin, by means of an incision beginning between the tuber ischii and anus, but a little in front of the latter on one side, and curving back like a horseshoe crossing the lower third of the sacrum to a corresponding point on the opposite side, sawing through sacrum with a chain saw and turning forward the flap of skin, muscle, and bone thus made, exposing the rectum from behind. About 4 cm. of the rectum were resected about 7 cm. above the anus, opening the peritoneum, and the two portions of the rectum united with sutures. Both cases recovered, though one had a fæcal fistula where the two portions of rectum were sewed together, which finally healed. The flap of skin, muscles, and bone was not fully replaced and sutured until the rectum had healed, a few stitches on the sides holding it in place while the rest of the wound was packed.

For congenital dislocation of the hip I saw him operate twice, as follows: He makes an incision from the anterior superior spinous process of the ilium downward over the joint 10 to 15 cm. in a line with the external condyle of the femur, separates the muscles but does not detach from their insertion, opens the capsule, and scoops out with a special instrument—a kind of auger—a new acetabulum at the proper site, then pulls and manipulates the head of the femur into this depression and closes the wound with sutures through skin and muscle, but not through the capsule, and puts up with plaster of paris. Passive motion at proper time, ten days or two weeks.

Professor von Bergmann said that he had obtained good results from this method. Chloroform was the anæsthetic almost universally used and often it was given to patients seated bolt upright strapped in a chair, as for reduction of dislocation of the upper extremity. I saw no bad effects.

A word must be said about Dr. Schleich's method of using cocaine in major operations, as laparotomies, where there are not many adhesions to deal with, e. g., ventral fixation of the uterus, cholecystotomy, and in one case amputation of the forearm. His formula is sodii chloridi, 2 grams; cocaini, 1 gram; morph. muriatis, 0.25 gram; aqua distil., 1,000 c. c.; the maximum dose of the cocaine itself being 0.05 of a gram, or 50 c. c. of the above solution. It is injected into the tissue of the field of operation by means of a hypodermic syringe, layer by layer, first into the skin itself, then into the subcutaneous tissue, then muscle, and then periosteum (in case of amputation), using many injections, which are painless, the first one being made so by slight freezing with ether spray if desirable.

So much has been written about antitoxin that I will only mention here the opinions expressed to me in the different cities visited as to its value in diphtheria. In Berlin the opinion was almost unanimously in its favor in spite of the attack made by Hansel. In Leipsic the opinion was quite conservative, Professor Tillmanns, of the Children's Hospital, saying that it would require a year or more in order to establish its value, and in the children's division of the City Hospital (hospital at St. Jacobs) I was told that they had little confidence in its virtue and believed it acted injuriously on the kidneys. In Dresden the "heilserum" was held in high esteem. In Prague, Professor Weil, of the General Hospital, said that it was used there with excellent results, but did not believe the reduction of mortality on account of it was from 60 to 12 per cent, as was claimed in Berlin. In Vienna the opinion was generally favorable. Professor Widerhofer used it in the Children's Hospital and was well satisfied with its action. In Paris, it is scarcely necessary to say, there was great enthusiasm over this remedy, while in London they seemed ultraconservative and skeptical.

In Dresden Professor Leopold explained his method of determining the position of the child in utero by external examination alone, which he has systematized into a method which he calls his "four grips," explained as follows:

Grip 1 (the physician faces the patient).—Both hands are placed flat across the belly of the woman with the finger tips touching, and then gently and symmetrically passed over the womb to the fundus, determining its position in relation to the navel and epigastrium, at the same time feeling whether the child is straight or transverse, whether the head or breech lies in the fundus, the size of the child, and the stage of pregnancy.

Grip 2.—The hands separated, instead of with finger tips touching, are passed from the epigastrium to the sides, lying flat on the sides of the womb. Under one hand are felt the smaller parts, under the other the long cylinder which corresponds to the child's back. The recognition of the back may be facilitated by putting one hand on the middle line and pressing the womb gently back, thereby forcing the amniotic fluid to one side and the child's back to the other, where it can easily be felt by the other hand.

Grip 3.—With the thumb of the right or left hand, separated as far as possible from the fingers, clasp with the thumb and tip of the middle finger, close over the pelvic inlet, the presenting part of the child. If hard and round it can only be the head, and if not yet engaged may be moved as a hard ball. The breech feels much softer and more uneven. If the presenting part of the child is felt unusually covered, indistinct, and somewhat softer than usual, the presumption is that the placenta is situated in the lower part of the uterus. If no presenting part is felt, the head is sought in the side of the womb, and this is best done by means of the fingers of one hand striking the uterus gently with short strokes, thus causing the head to make short, springy movements.

This grip is of great value in all cases where the presenting part, head or breech, is still in or above the pelvic inlet. If it is further advanced, already in the middle or outlet of the pelvis, grip 4 is of value.

Grip 4.—The physician stands by the bed with his back to the woman's face, and with the finger tips of both hands presses slowly and gently over the groins deep into the sides of the pelvis. With a deeply engaged head, a hard round part of the child is clearly perceived to fill the pelvis and the arched forehead on one side is easily distinguished from the flat neck on the other.

In Vienna I found Professor Gussenbauer, who succeeded the celebrated Billroth as professor of surgery in the university, courteous and obliging. He is the inventor of the artificial larynx which bears his name, and a surgeon of great ability, being very slow and careful in his operations. In removing most of the thyroid gland for goitre he had the patient propped up into the upright sitting posture and thus gave chloroform, showing the usual fearlessness with which the German surgeons use anæsthetics. On one occasion he showed a young man 18 or 20 years of age in which the right femur was 2 cm. longer than the left, causing a decided limp which had come on recently. There was some enlargement of the right trochanter with pain on deep pressure. Otherwise the patient seemed in perfect health. The professor thought it a case of osteomyelitis, the inflammation having stimulated the bone to overgrowth so that it exceeded its fellow in length.

I have recently seen a case somewhat similar in a man 40 years old, who suffered severe pain in the right hip and thigh for a period of two years with short intervals of relief, and was treated for sciatica and rheumatism. At the end of two years he had developed a decided limp, although there was no pain, and on measurement the right femur was found to be fully 3 cm. longer than the left. The limp was relieved by a shoe on the left (sound) foot with a sole 3 cm. thick.

It would seem from these two cases that osteomyelitis may cause sufficient increase in the length of the bones affected as to require some orthopedic apparatus for its correction and at the same time not seriously impair the functions of the limb.

In Padua Prof. Edward Bassini was very pleasant and courteous. He is apparently 55 years of age, tall, slender, quick, and alert in his movements, with brown eyes and black hair and beard about equally mixed with gray. He speaks German quite well and English a little. He did five hernia operations and took the trouble to explain them thoroughly.

Description of operation.—He makes an incision over the inguinal canal through skin and fascia down to the aponeurosis of the external oblique, tying each vessel with silk as divided. He then divides the aponeurosis of the external oblique, exposing the spermatic cord from the internal to the external ring, separates the hernia sac from the cord to a point within the internal ring, twists the sac and pulls it out well, ligates with silk, or sews, if large, and cuts off. He then hooks back the tissues, including the divided aponeurosis, removes the cord to one side, and sews the conjoined tendon and rectus muscle to Poupart's ligament from the spine of the pubes to the internal ring, using interrupted silk sutures. Then the cord is replaced and the aponeurosis united over it from above downward to the external ring. Last, the skin and fascia are united with a continuous lock stitch of silk, without drainage, and dressed with sterilized gauze (no iodoform), cotton, and a gypsum bandage. He usually found the wound healed in eight or nine days.

Professor Bassini was extremely careful about his asepsis, giving his personal attention to the disinfection of instruments and the sterilization of the dressings. He informed me that he first did this operation in 1884, and that he had now performed it seven hundred and fifteen times without a death, and knew of only nine relapses.

In London I saw Dr. Granville Bantock, Mr. Skene Keith, Mr. Lucas, Mr. Collins, and Mr. Treves. Dr. Bantock's views as to germs causing disease are well known. He claims that we do not distinguish between "post hoc" and "propter hoc;" that the germs appear on account of the disease, and not the disease on account of the germs. In his operations he uses no antiseptics, does not boil his instruments nor sterilize anything, nor boil the water for flushing out the abdominal cavity, but uses silk and gauze just as it comes from the manufacturer or dealer, and water as it comes from the tap. He uses only soap and water for cleansing his hands and the field of operation.

Professor Sänger, of Leipsic, informed me that he used water from the tap, without any antiseptic, and for the year during which he had used it had no case of sepsis. Dr. Bantock believes in drainage, and requires visitors to his operations to sign a declaration in a book kept for that purpose that they have attended no case of infectious disease, peritonitis, nor post-mortem for two days before his operation. His results are good.

REPORT OF CASES OF BERIBERI.

By P. A. Surg. C. P. Wertenbaker.

U. S. Quarantine Station,
Delaware Breakwater, Del., June 14, 1895.

Sir: I have the honor to inform you that the British bark *Mark Curry*, 132 days from Iloilo, Philippine Islands, which arrived at this station during the night of June 12, 1895, had on board four cases of beriberi, the first of which made its appearance about May 25, 1895. None of the cases were very sick. I prescribed tincture digitalis and iron, quinia, and strychnia for them, and judging from my recent experience with the cases on the ship *Daniel Barnes* these patients will soon recover. The *Mark Curry* has been ordered to Halifax, Nova Scotia. The comparative rarity of this disease in the United States, and the interest shown in it by the profession at large, leads me to give in outline the history of the cases that have come under my observation. A most valuable and interesting report on beriberi by Rounsevelle Wildman, United States consul at Singapore, was published in United States Marine Hospital Report for 1892, p. 152. I was indebted to this report for my ability to diagnose the disease when I first saw it on the ship *Daniel Barnes*, and I would refer anyone interested in the subject to that report for more detailed information. The symptoms in the cases I have seen seem to be quite constant, and are as follows: Some months, usually from two to three, after the vessel had sailed from the Philippine Islands, one or more of the crew would complain of a numbness on the outer aspect of the legs over the peroneal muscles; this was followed within twenty-four hours by œdema, which commenced above the ankle; this would quickly spread until it involved the foot, and upward, the calf, and in the more advanced cases extending up the thighs, and in two of the cases from the *Daniel Barnes* involved the abdomen with the production of ascites and some interference with breathing. With the œdema, and coextensive with it, would come a numbness of the skin. In the advanced cases this was particularly marked in the hypogastric region. There was more or less gastric and intestinal irritation, bowels moved frequently, passages watery, heart's action enfeebled, marked muscular weakness. The symptoms most complained of by the patients were the aching in the calf of the legs and the soreness in the abdomen, usually in the umbilical region. In every case, at the onset, there was partial suppression of urine, and throughout the disease there was scantiness. In the three cases that I had in hospital here two of them showed marked symptoms. They were put on tincture digitalis every three hours, associated with elixir iron, quinia, and strychnia phos. This was continued for thirty-six hours, during which there was a marked amelioration of all symptoms, and in less than a week from the time of admission all were discharged recovered. At the end of thirty-six hours the digitalis was discontinued and the iron, quinia, and strychnia was given alone. They were allowed to eat anything their fancies dictated. I have been interested to learn the origin of this disease. In each case that has come under my observation the disease has not made its appearance until from sixty to ninety days after having left the Philippine Islands, and its appearance has usually followed a few weeks after commencing to use water taken aboard at the Philippines. In the case of the *Daniel Barnes*, water carried from New York was used for drinking purposes on the outward voyage, while at the islands, and until within forty days of their arrival in the United States. Then a tank of Philippine Island water was opened, and within two weeks after its use had commenced beriberi made its appearance. In the case of the *Mark Curry*, Philippine Island water was used while at the islands, and was used on the return voyage. A fresh supply of water was taken on at St. Helena, but the use of the water from Iloilo was still continued. I have secured a sample of this Iloilo water and will send it to the Bureau for analysis. It would seem that there is some connection between the use of the water and the appearance of the disease. Another point must be taken into consideration. These vessels carry canned goods, taken aboard before they start on their outward voyage, and they are not improved by their sojourn in a tropical climate. Fresh meat is usually an unknown quantity, and potatoes and onions have usually disappeared several months before the vessel reaches the United States. I do not doubt but that the question of food plays an important part in the production of the disease. Lime juice is given sparingly, but usually not until after the disease has made its appearance. The disease seems to be noncontagious, and is much like scurvy in many points, though there is the absence of the blue line along the gums.

Respectfully, yours,
C. P. WERTENBAKER,
Passed Assistant Surgeon, M. H. S.

The SURGEON-GENERAL, M. H. S.

SOME NOTES ON THIERSCH'S METHOD OF SKIN GRAFTING, WITH REPORT OF CASE IN WHICH IT WAS USED AFTER EXTENSIVE SLOUGHING FROM CELLULITIS.

By P. A. Surg. J. C. Perry.

The successful restoration of skin, after traumatic injury or operative work, is a subject of wide interest. The longer and wider the strips the better, and large ones will heal as quickly and as well as small ones. The main points in the production of good results are asepsis, dryness, accurate apposition, and rest.

The wound surface, either after operation or granulating wounds, the latter being prepared by curetting the granulations, or, as I prefer, cutting the greater portion of them away with a sharp knife so as to leave a smooth surface, should be rendered aseptic by the use of bichloride solution and every trace of the antiseptic removed by washing the parts with a sterilized salt solution. Then all oozing should be arrested by pressure with gauze. If the wound is one in which old scar and fibrous tissue has developed, this must be removed. Also use the same care and agents in making aseptic the skin that is to be transplanted. Of course the hands and instruments must be clean.

Only the upper layer of the skin should be removed, about upper one-half; the flap is made with a razor, used with a sawing motion. The strip of skin should be constantly irrigated with salt solution, and immediately transferred to the wound and accurately adjusted. This process is continued until the whole area is covered, each graft slightly overlapping the other. The dressing consists in covering the grafts with rubber tissue, as a protective gauze, and if possible placing the part at rest on a splint.

CASE.

W. P.; aged 34 years; nativity, Virginia; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., June 30, 1894.

About four weeks previous to admission, while engaged in fishing, patient had his right hand injured by the fin of a fish. In a few days the hand became very painful, and, from the history he gave, a palmar abscess must have formed. He consulted a doctor, who recommended a poultice. The inflammation extended up the forearm and the arm nearly to the axilla, a diffuse cellulitis existing; still his medical adviser adhered to the poultice and no incisions were made. As the pain was intense, and the fever, consequent upon suppuration, was rapidly sapping his strength, he became alarmed, fearing the disease would result in the loss of his arm, and consulted me. I found that the skin and cellular tissue on the back of the hand had sloughed, leaving the tendons bare, and a diffuse suppuration existed, involving the entire forearm and the greater portion of the arm.

Several long incisions were made through the boggy tissue, which revealed that there was extensive sloughing of the skin and cellular tissue. All the dead tissue that had become detached was removed, and after irrigation with a hot bichloride solution and a liberal use of peroxide of hydrogen a wet dressing of 1 per cent solution of carbolic acid was applied.

Under daily irrigation and the use of wet dressings the sloughs rapidly separated, leaving several large areas of granulating tissue; the fever soon subsided, and the patient was convalescent. Still, as there was considerable loss of skin, the healing process if left to nature must necessarily have been slow, consequently I covered the denuded areas with skin grafts after Thiersch's method.

After the surfaces had been properly prepared sixteen strips 4 inches long and 1 inch wide were taken from the legs and transplanted on the arm. The proper dressings were applied and the member placed on a splint to insure rest. On the fourth day the dressings were removed, and all the grafts were found to have retained their vitality. The patient's progress toward recovery was uneventful, and he was discharged cured ten days later.

A CASE OF MILIARY TUBERCULOSIS AS A SEQUEL OF ENTERIC FEVER.

By P. A. Surg. J. C. PERRY.

Although tuberculosis as a sequel of typhoid fever is not rare, and according to the belief of some is more frequent after this than other specific fevers, still I think the following case is of sufficient interest to warrant its report.

Dr. Pepper[1] says that while tuberculosis is rather frequent after enteric fever, still the majority of such cases are miliary tuberculosis from the beginning, which have been erroneously diagnosed.

That both these diseases may exist in the patient at the same time is proved by the report of a case by Kiener and Villard.[2] The autopsy revealed the existence of both typhoid and tubercular ulcers in the small intestine; these were distinguished by the presence of induration and the occurrence of miliary tubercles on the peritoneal surface of the tubercular lesions, and by their entire absence in the typhoid. Cultures made from the spleen also showed the existence of the typhoid bacillus.

CASE.

J. L.; aged 23 years; nativity, England; admitted to the marine ward, German Hospital, Philadelphia, Pa., October 20, 1894; died February 20, 1895.

He gave a history of having been ill for ten days, suffering with fever, headache, epistaxis, diarrhœa, and vomiting. On admission his temperature was 40° C., pulse 114 per minute, tongue was coated, constipation and tympanites existed, and a few rose-colored spots were seen on the abdomen. His fever, as seen by the accompanying charts, ran the typical typhoid course, ending by lysis on the ninth day, i. e., nineteen days from the commencement of the attack.

His improvement was gradual and steady until November 17, when he had a relapse; the temperature was 39.8° two days later. Accompanying the febrile disturbance were epistaxis, diarrhœa, headache, and a crop of rose spots; a typical typhoid relapse. The attack ended by lysis, the temperature falling to normal on December 8. About this time several abscesses formed in succession in the inguinal region;

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[1] American Text Book of Practice.

[2] La Societé Biologie, 1893, V, No. 1, p. 14.

they caused a slight elevation of temperature, that continued until January 8. The patient was much debilitated by the relapse and the abscesses; still, as his temperature was normal, and he was slowly regaining strength, hopes were entertained for his recovery. During this time the slight cough which was present during the attack of fever did not cease. Careful physical examinations failed to reveal any cause for it.

From January 8 to February 6 the temperature was normal, and the patient feeling fairly well, but still weak and anæmic. On February 6 he had a chill and his temperature was 39° C; the fever continued, running an irregular course; the cough increased in severity, but there was nothing characteristic about the sputum, and frequent microscopical examinations of it were negative. On physical examination only the signs of bronchitis could be detected. In a few days some dullness on percussion was noticed over the lower lobe of the left lung, and as the vocal fremitus and the vesicular murmur was much diminished, an effusion in the left pleural cavity was diagnosed, and, judging from the symptoms, it was thought to be purulent. An aspirating needle was introduced and 150 c. c. of bloody fluid was obtained. From its character a tubercular process was suspected, and on microscopical examination of it there were found, in addition to the red blood corpuscles, pus corpuscles and the tubercle bacillus. The patient rapidly lost strength and the progress was rapid toward a fatal termination. Four days before his death he became comatose and remained in this condition until the end.

Necropsy (*twenty hours after death*).—External appearances: Body much emaciated; post-mortem lividity slight. Thoracic cavity: The pleura on the right side was normal; that portion of the left covering the lower lobe of the left lung was inflamed and thickened, but no tubercles could be found in its structure. There was no fluid in either pleural cavity; the small amount remaining in the left cavity after aspiration having been absorbed. The right lung contained at its apex quite a number of miliary tubercles, but the other portions of its structure were not diseased; weight, 600 grams. The apex of the left lung was healthy, while its lower lobe was consolidated and almost devoid of air, being densely studded with miliary tubercles; weighed 650 grams. The pericardium was normal. Heart was small, and its muscular tissue had undergone fatty degeneration; weighed 260 grams.

Abdominal cavity: Stomach normal. Peyer's patches furnished a most interesting study; six were found ulcerated; the edges and floor of the ulcers were yellow and much infiltrated. They were evidently tubercular processes engrafted upon the typhoid ulcers. The pathologist of the hospital who examined the specimens for me, reported that the bacillus and cellular elements characteristic of tubercle were found. Two other ulcerated patches were found; these ulcers were quite different from the others, and were typhoid, since they were not infiltrated, and some were partially cicatrized; again, they did not contain the essential elements of a tubercle. Liver was much enlarged, weighing 2,540 grams, and had undergone fatty degeneration. The spleen was twice its normal size. Pancreas was small; it weighed 60 grams, was very firm, and contained considerably more fibrous (connective) tissue than normal. The right kidney weighed 224 grams, and three small areas of tubercular caseation were found in its structure. The left kidney weighed 168 grams, and was normal. Cranium: The pia mater was congested and tubercles were found in its structure along the course of the blood vessels, especially the middle meningeal arteries.

CHART No. 1.—Name, J. L.; age, 23; disease, enteric fever.

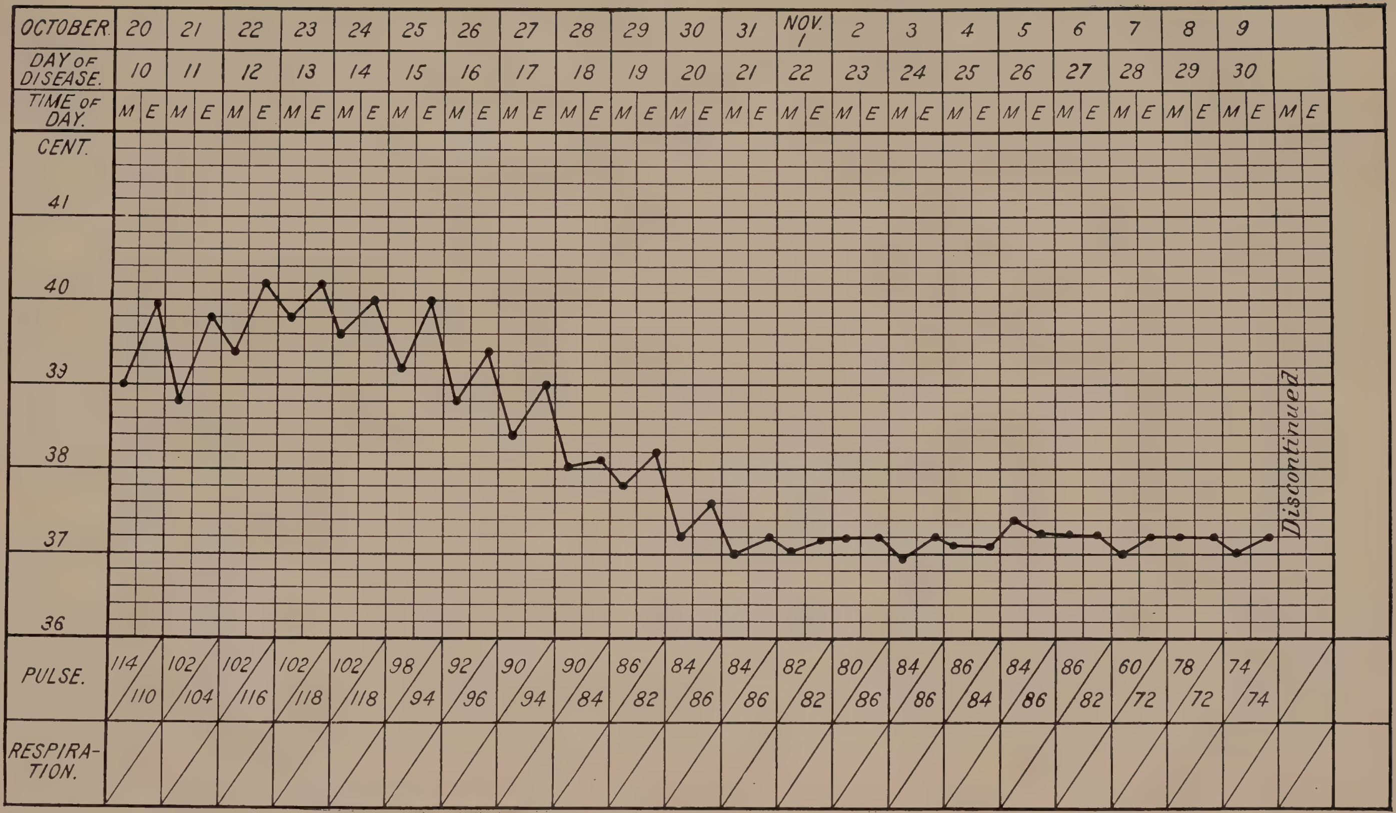


Chart No. 2.—Name, J. L.; age, 23; disease, enteric fever—relapse.

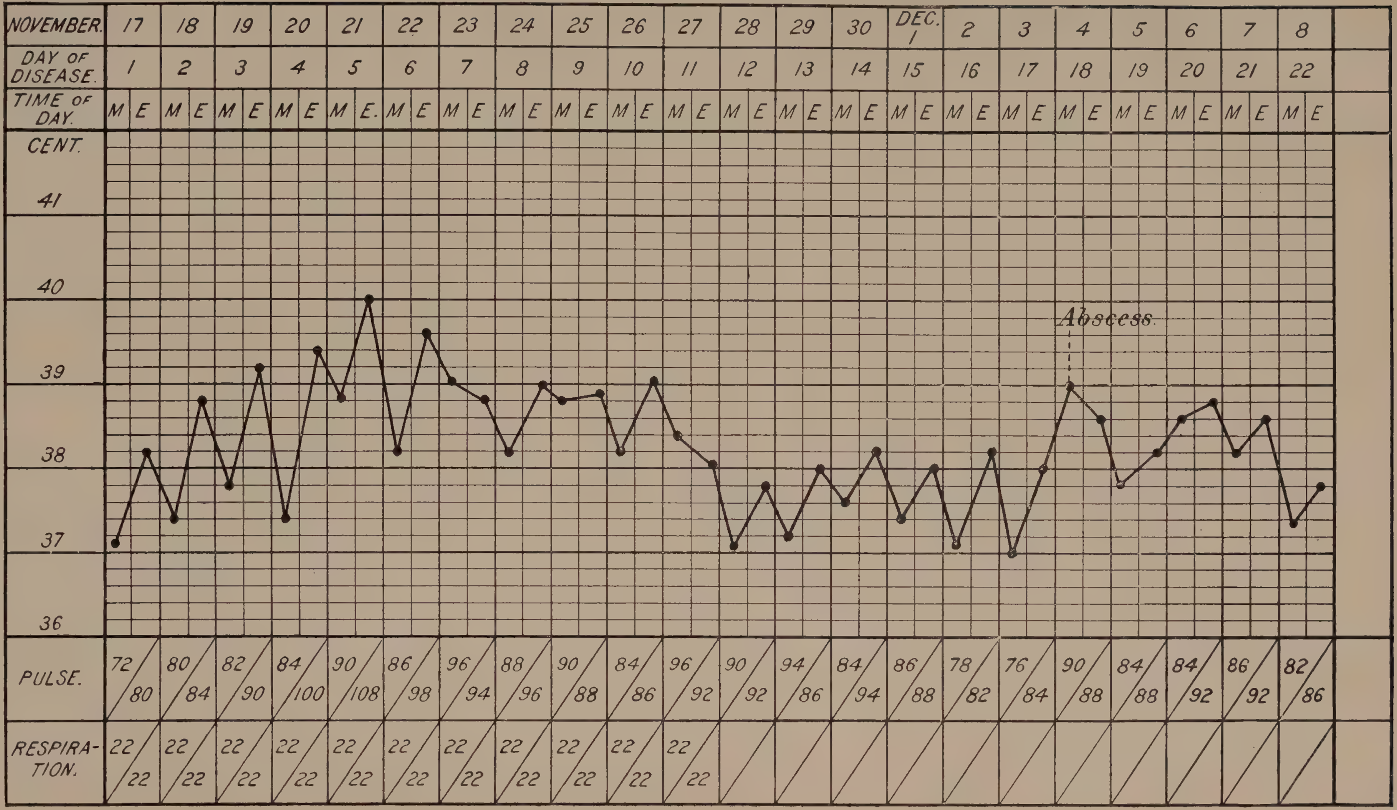


Chart No. 3.—Name, J. L.; age, 23; disease, enteric fever—relapse and suppuration of inguinal glands.

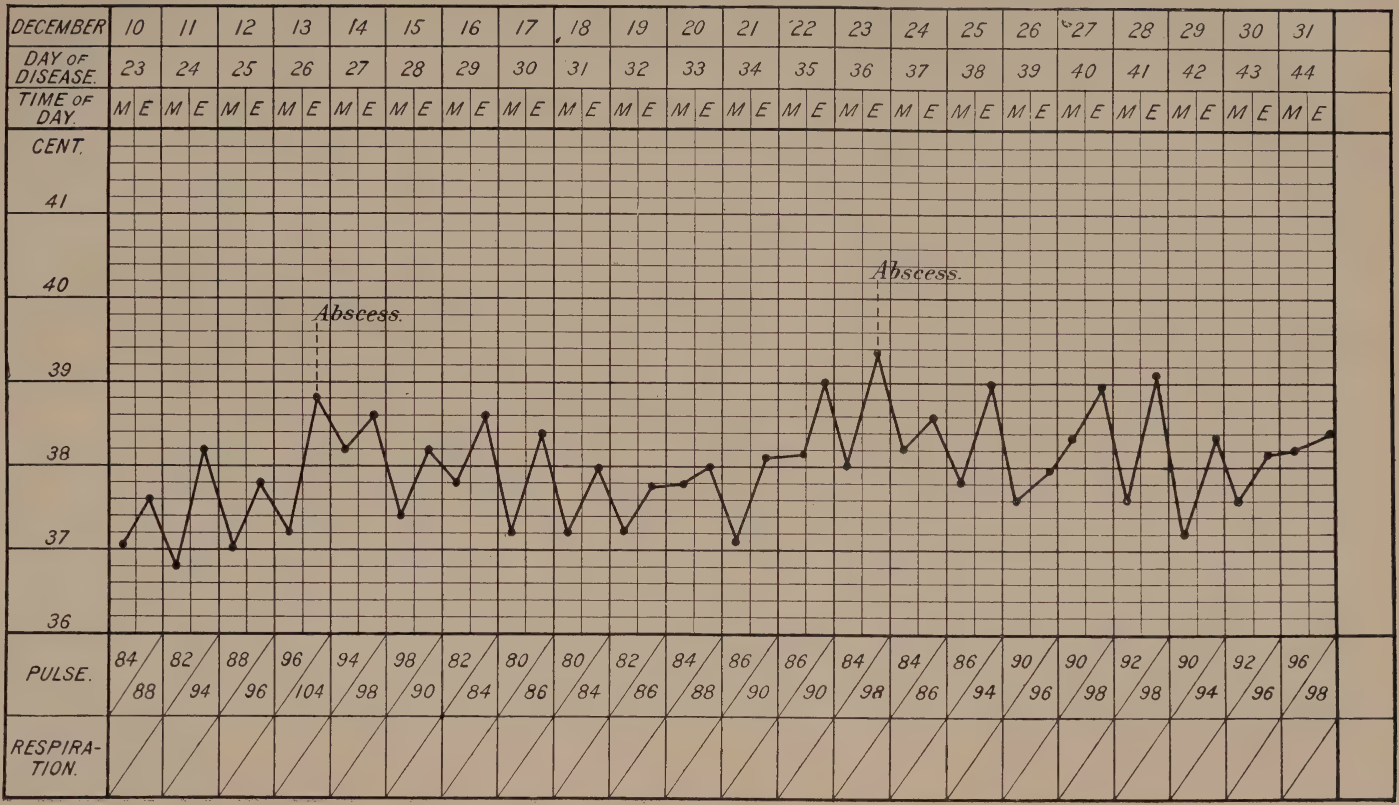


Chart No. 4.—Name, J. L.; age, 23; disease, enteric fever, etc.

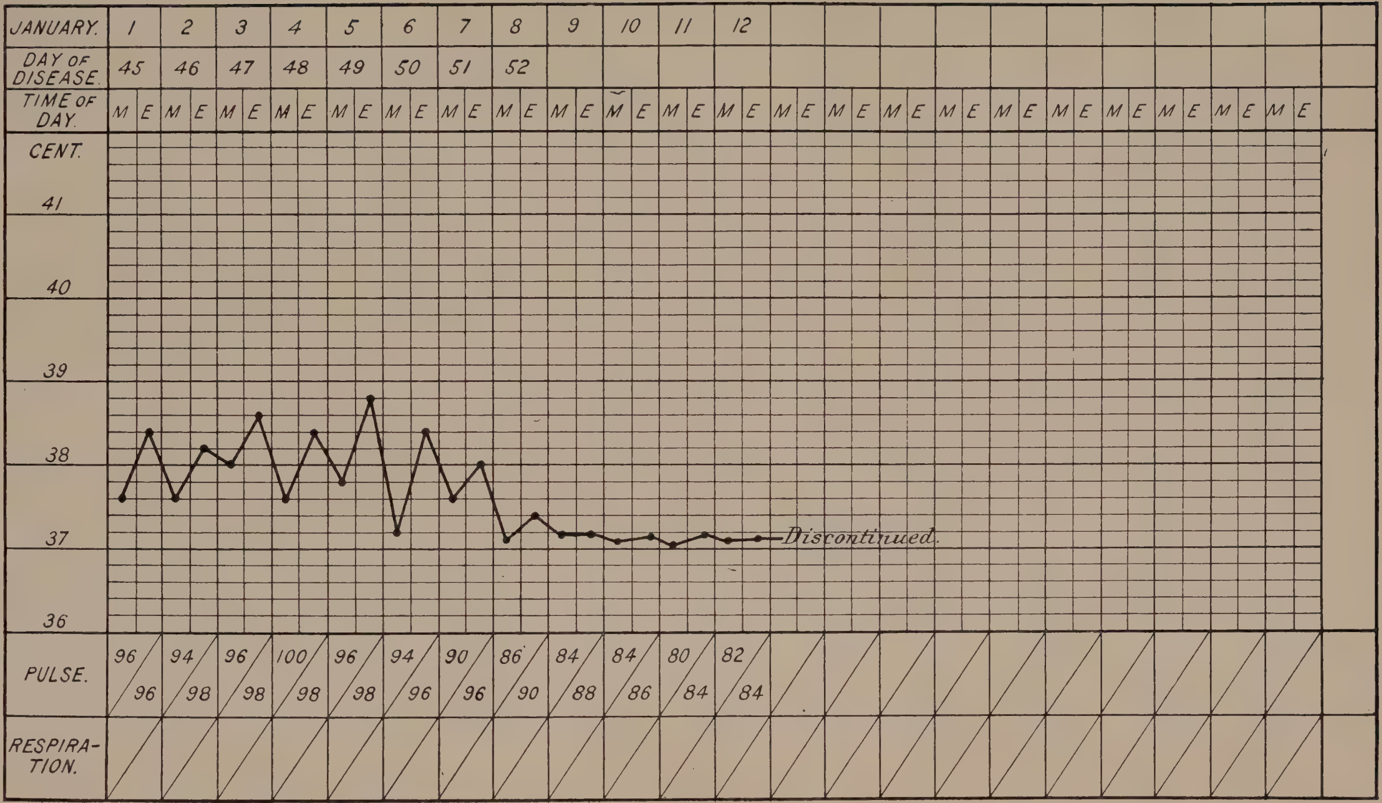
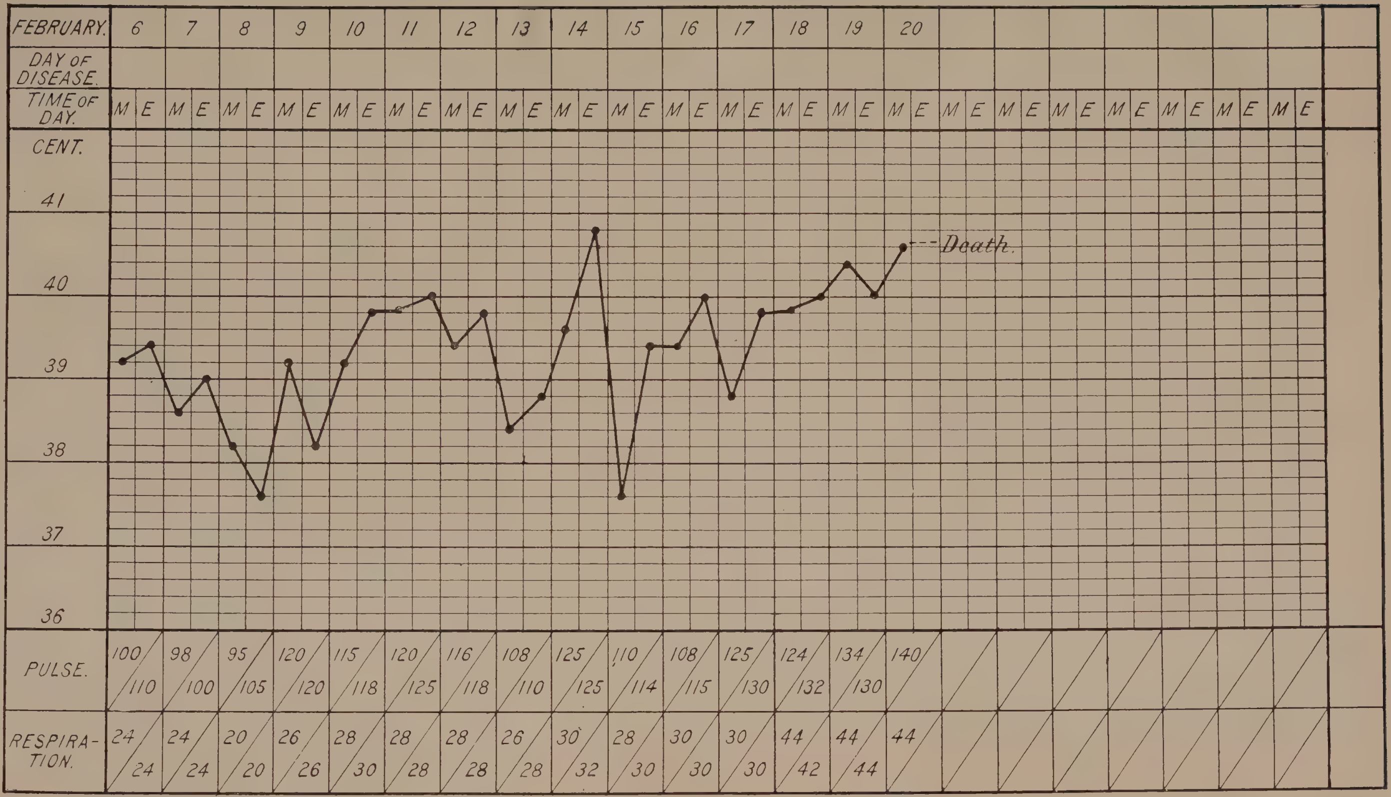


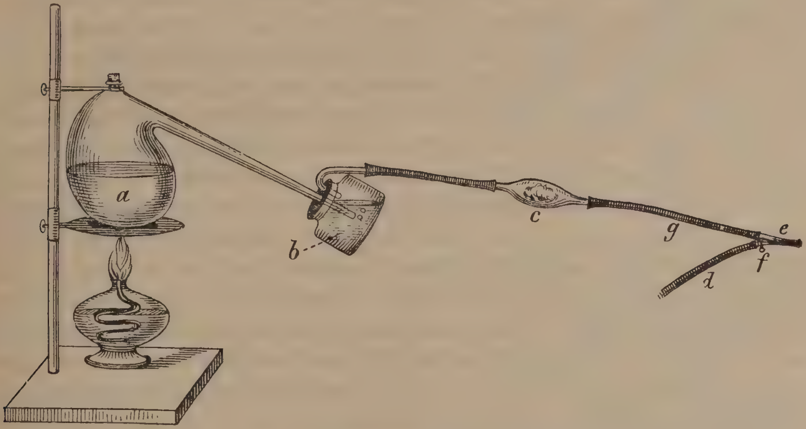
CHART No. 5.—Name, J. L.; age, 23; disease, miliary tuberculosis as sequela of enteric fever.



AN IMPROVISED STEAM CREOSOTE VOLATILIZER FOR USE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By Asst. Surg. L. E. Cofer.

The marked general improvement following the use of the improvised steam volatilizer (vide infra) in the treatment of pulmonary tuberculosis, in patients of the United States Marine-Hospital Service under my charge during my service at Savannah, Ga., and at San Diego, Cal., has caused me to make a brief report of this method.



In the retort *a* is a mixture of two parts water and one part alcohol. In the bottle *b* is a mixture of two parts creosote and one part alcohol. The glass bulb *c* contains a small piece of absorbent cotton to absorb the condensed steam (this can be removed and renewed at will). The mouthpiece *e* is made of glass tubing, the ends of two short pieces having been fused together. One arm of the mouthpiece connecting with the creosote tube *g*, and the other with the oxygen tube *d*, the latter guarded by a stopcock, *f*, to prevent waste. The oxygen gas is derived from an ordinary storage tank. The action of the volatilizer is as follows: On heating the mixture of alcohol and water in the retort *a* to boiling point, their combined vapors are made to pass through the mixture of creosote and alcohol in the bottle *b*, causing a certain volatilization of the former. These vapors are cooled by their passage through the bulb *c* and the rubber tubes, but not enough to cause a condensation of the creosote. The patient is directed to press the mouthpiece between his lips and to fully inflate his lungs with the vapor, letting in at the same time a small amount of the oxygen gas. After about twenty-five full inhalations the mouthpiece is washed and given to another patient. This is repeated every two hours when the patients are confined to the ward on account of bad weather, and three times daily in ordinary weather, until a tolerance is established, when the inhaler is used by someone all the time, particularly at night. The physiological action of creosote given in this way differs per se in no respects from the action of that drug when administered by the mouth, except that the unpleasant gastric symptoms following so frequently the latter method are absent. In using this inhaler the object is to train the patient to expand his lungs to the utmost with every inspiration and to hold the vapor of creosote as long as possible, thereby to establish a temporary emphysema and insure a partial diffusion of this vapor with the residual air. That the vapor inhaled in this way will come in contact with the diseased area in cases where the engorgement is marked we have every reason to doubt; but that in those cases where there is simply a slight narrowing of the air passages and a slight thickening of the walls of the air vesicles, it is only reasonable to suppose that the repeated filling and emptying of the lungs in the manner described above will be followed by results which would indicate an action on the part of the creosote other than systemic. I have only had the opportunity of trying this method of treatment in eight cases, and out of this number there were only two cases well adapted, by the character of their respective lesions, to show the applicability of this inhaler to certain forms of tubercular infection; but I am satisfied that the steady subsidence of the general symptoms in the two cases referred to and the final disappearance of the bacillus tuberculosis from the sputum in both cases was due to the persistent use of this volatilizer. Besides the general good effect following its use in cases of advanced tuberculosis, the moral effect alone warrants its trial. It relieves the cough to a great extent, and together with the oxygen produces a feeling of modified exhilaration, both of which cause them to take a great interest in using it and therefore to forget to spend their time in thinking of their troubles and complaining about the food, etc., a fact which ought to appeal to every Marine-Hospital Service officer.

REMOVAL OF HUMERAL HEAD—SUBSEQUENT SHOULDER-JOINT AMPUTATION.

By Asst. Surg. C. H. GARDNER.

A. A.; aged 40 years; nativity, India; a British seaman; admitted to the United States Marine Hospital, San Francisco, Cal., suffering from dislocation of the left shoulder, total paralysis of motion and sensation in and atrophy of the muscles of the left upper extremity.

Three months before patient had fallen from the fore-topsail yard, a distance of 30 feet, to the ship's rail, and received the full force of the fall in the axilla. Reduction by traction had been attempted by the master of the vessel, but without success. Dislocation had been upward and backward and motion was very limited, and it seemed probable that there had been either severe injury of the bracial plexus of nerves or that pressure of the humeral head was causing the paralysis. In the hope that the latter state of things obtained, it was decided to anæsthetize the patient and try reduction.

This was done October 20, 1894, and reduction was tried, but was unsuccessful. Reduction was next tried by the open method. This also failed, and the humeral head was excised about 1.5 cm. below the surgical neck. In removing this part some small fragments of bone were encountered and removed from the vicinity of the joint.

Upon inspecting the excised portion two exostoses were seen, the larger one springing from the anterior bicipital ridge and encroaching on the bicipital groove. It was of irregular shape, was grooved for the biceps tendon (which had been displaced), and, arching over the bicipital groove, had an articular facet for the acromion process to which it was bound by ligaments. The smaller exostosis arose from a point just to the inner side of the posterior bicipital ridge and was of irregular triangular shape. The bone structure about the anatomical neck was softened and eroded in two places. Regarding these exostoses, it seemed probable that they had been splintered from the acromion, and had been fused with the humerus by tbe reparative process. The glenoid cavity was covered with cartilage in a healthy state. Wound healed by first intention, and the patient made an uneventful recovery from the operation.

Three days afterwards patient noted a return of sensation in the arm, extending down to the elbow joint on the external and anterior surfaces and to the middle third of the arm on the internal and posterior surfaces. There was no return of voluntary motion.

During the two months that ensued galvanic and faradic electricity were both used at times, but there was no improvement in the condition of the arm; hence it was decided to amputate at the shoulder joint. Patient's general health had become much impaired; cough hectic, emaciation, and physical signs gave evidence of advancing tubercular disease. Supporting and tonic treatment improved his condition, however, sufficiently to justify amputation.

The arm was as useless as when patient was admitted to hospital. Accordingly, December 21, patient was anæsthetized and amputation done. Lateral flaps were made. Excised end of bone was found covered in and united by fibrous bands to the glenoid cavity, forming a fair joint. Wound healed, as before, by first intention, except where the drainage tube had been inserted. This sinus filled by granulation, and patient was discharged January 24, with wound entirely healed.

OPERATION FOR CANCER OF THE RECTUM.

By Asst. Surg. C. H. GARDNER.

F. M.; aged 52 years; nativity, Mexico; admitted to the United States Marine Hospital, San Francisco, Cal., September 17, 1894.

Patient complained of bloody discharges from the bowels, dull aching pain in rectum, which was aggravated by the act of defecation. He was impelled to stool every two hours and dejections were quite scanty. Upon digital investigation a nodular tumor was found occupying a portion of the posterior wall of the rectum, from just within the sphincter to 5 cm. above. The discharge referred to was not blood, but the coffee-colored fluid of cancer; and diagnosis was made accordingly. Matters having been explained to the patient, operation was decided upon. For a week preceding the operation he was restricted to milk diet, daily enemata of warm water were given, and an occasional laxative.

Operation performed October 14, 1894. The disease had made considerable progress since admission to the hospital, and a tumor was found, about 5 cm. long by 2.5 cm. broad, and involving the entire circumference of the rectum. The diseased portion was excised—cut extending well up into healthy tissue. The divided end of the rectum was not brought down and sutured to the skin, as it was thought that the tension would be too great. Hemorrhage was moderate. A hollow iodoform tampon was inserted into rectum, and the wound packed. About a week afterwards sutures were put into perineal part of wound to reduce its size. Granulation went on and wound rapidly healed.

The subsequent history of the case is simply that of treatment of the resulting cicatricial stricture of the anus. There has been no return of the disease up to the time of the last examination, six months after operation. Patient has no pain, passes no coffee-colored discharges, and is in good general health. He wears a vulcanite plug with little or no inconvenience, and it serves the double purpose of preventing closing of the anus and promoting cleanliness.

COMPOUND DISLOCATION OF ANKLE-JOINT—OPERATION—RECOVERY.

By Asst. Surg. C. H. GARDNER.

J. M.; aged 45 years; nativity, Massachusetts; admitted to the United States Marine Hospital, San Francisco, Cal., February 16, 1895.

Four days before, while trimming ballast at sea, his feet were caught between keelson and a piece of heavy timber. When admitted there was a compound dislocation of the tibio fibular and tibio astragaloid articulations, the malleolus slipping out through an opening in the skin. The wound had become infected, and suppuration was profuse. Next day, under an anæsthetic, the wound having been made as clean and aseptic as circumstances would permit, the skin was incised and the malleolus slipped into place. The skin was then brought up over the bone and sutured. Over the antiseptic dressing a plaster cast was placed. Next day patient complained of pain and pressure. A large fenestrum was cut out of the cast, which relieved this symptom.

On the fifth day the sutures were removed. There was some suppuration and sloughing, but granulation continued and discharge finally ceased.

Eighteen days after first operation skin grafts were taken from the thigh, after the Thiersch method, and placed upon the surface of the wound after curetting and checking hemorrhage. These grafts nearly all "took" nicely and the surface of wound covered in all but a small sinus. This sinus gradually filled in, until, at the time of patient's discharge, it was entirely healed.

During all this time, two and a half months from the time of admission to hospital, the joint had been immobilized, and at the time of discharge (May 23) patient was able to walk about on the foot, and the motion at the ankle-joint was nearly as perfect as in the uninjured foot.

TREATMENT OF DECK HANDS ON STEAMBOATS ON THE OHIO AND MISSISSIPPI RIVERS.

By Asst. Surg. E. K. Sprague.

In the report of the United States Marine Hospital Service for 1882 is an article by the present Surgeon-General entitled "Hygiene of the steamboats of the Ohio River," in which is graphically portrayed the hardships of the life of a roustabout. It would seem hardly possible that the conditions then existing should obtain to-day; but careful investigation has failed to reveal any appreciable improvement. This conclusion has been reached after visiting boats not only upon the Ohio, but also upon the Mississippi, the Alabama, and the Tombigbee rivers.

A ride on the lower deck of one of these boats, devoid of bulkheads, is very pleasant to contemplate on a hot summer day, but in the winter it is quite another thing. The breeze that was so refreshing in July has been replaced by the biting blast, bringing with it a bleakness that is unknown save on the wind-swept deck of a river boat. On this exposed platform, as it were, a crew of from ten to forty roustabouts must seek their own protection.

It would be natural to expect that some place to sleep would be provided, but anything in the shape of a bunk or hammock for the exhausted negro is not to be found. The only space which affords protection and an opportunity to rest has a cement floor, is 3 feet in height, and beneath the boilers. It varies in size with the boat, and is usually large enough to accommodate the entire crew when they are arranged like sardines in a box. Think of packing forty wet, tired men in a space 25 feet square and 3 feet high, beneath steam boilers; and then, what is perhaps worse, in a short time they are turned out without extra clothing to work in an atmosphere below the freezing point. Is it any wonder that pneumonia finds among them numerous victims?

The food, with which it is only fair to state little if any fault is found, is generally supplied in abundance, and consists of boiled corned beef and bread. The meat in chunks is placed in one pan and the bread in another. There are no tables, no knives, no forks. The men fall on their knees upon the deck around these pans and gather the food with the implements with which nature has provided them. If one is fortunate enough to find an old tin can he has an allowance of coffee, but unless he provide a dish he is deprived of that comfort. The fact that so little complaint is made is merely an evidence of the poverty and wretchedness to which the crew is accustomed, and affords no excuse for a continuance of practices savoring of barbarism rather than nineteenth-century civilization.

The drinking water is obtained from the river. We will say nothing of the unpalatableness of muddy water in summer in a semitropical country; but, when comparatively pure drinking water can be furnished at a trifling expense, to compel the use of a solution of pathogenic organisms is little short of criminal. The poor roustabout, tired and thirsty, partakes freely, and as a result many cases of fever and gastrointestinal disorders are thrust upon us, the most of which are entirely preventable.

The hours of labor are fixed by the demand, and sleep must be caught as best it can upon the cement floor under the boilers or upon the deck. Whenever a landing is made the entire crew is turned out and incited by curses, kicks, and hickory clubs. They labor with almost superhuman energy to unload and load the freight. When the boat is ready to start many are so exhausted that they can not seek the protection of the boilers and they fall upon the deck there to lie till aroused at the next landing.

A clergyman has related to me how he saw a mate of a river boat throw a heavy hickory club—the regulation grade mark of a mate—among a crowd of roustabouts, apparently utterly regardless of its effects; then, later, as if not satisfied with such a display of brutality, he would knock an occasional one into the river as he was crossing the gang plank with his load.

January 17, 1894, there were admitted to the United States Marine Hospital, Cairo, from the steamer *A—— L——* seventeen colored seamen, all of whom were suffering from more or less severe frostbites of the hands and feet. The preceding night had been intensely cold for that region, the thermometer registering—2° F. These men had been compelled to unload and load freight at the various landings, a very fortunate circumstance, because they were probably thereby saved from a fatal chilling. Their statement was unanimous that they did not suffer so much at the landings as when aboard the boat. The only source of warmth, the boilers, was denied them, oaths and clubs being freely used to drive them away. They were too cold to go to sleep, and they were obliged to keep moving and beating themselves to maintain sufficient bodily heat to prevent freezing. The claim that had they been allowed to have squeezed among the bales of cotton, with which the boat was loaded, or to have remained near the boilers, their fingers and toes would have been saved, seems reasonable. They were poorly clad, as is the average roustabout, and were in no way prepared for the unexpected cold which prevailed.

One poor fellow whose fingers were frozen stiff and so bent that the hands resembled claws, when asked "Did you have to work with your hands in that condition?" replied in the affirmative. Being further questioned as to what he could accomplish, he said, " When I once got them under anything they were like so many hooks." Five of this man's fingers were amputated in part or whole, as necessity required; the usefulness of those remaining was greatly impaired by loss of nails and contractions. The other sixteen recovered with no more loss than a few nails with the exception of three, each of whom lost a finger. There can be no question that nearly if not all of that suffering was needlessly entailed. As evidence of the sympathy aroused by such a state of affairs, it may not be amiss to state that not one of the three daily papers published in Cairo deigned to make mention of the unfortunate occurrence.

Instances in which so many suffer may be uncommon, but individual cases might be recorded almost without limit. I have recently learned of a case in which a negro's feet were so badly frozen aboard one of the Ohio River steamers that, as soon as he was able to leave the hospital, he hobbled as best he could directly for the river, which was near by, and he was prevented from committing suicide simply because in his crippled condition he could not escape from attendants who chanced to see him and suspected his design.

Now, as to the remedies for the existing evils: First, two crews should be engaged, one of which is off watch while the other is on; second, accommodations should be arranged for those off duty, so that they may be adequately protected and opportunity afforded for needed rest; third, the means for improving the food and water are obvious.

That the above remedies are practicable has been conclusively demonstrated by the steamer *M*——, engaged in trade upon the Ohio River. She has a double crew, each half of which is assigned to alternate watches of six hours. Those off duty are allowed to occupy a portion of the "texas," the house on the upper deck, where they may have a fire during the colder months, and there they employ themselves as they please. This arrangement has proved satisfactory both to the owners and to the crew, and as a result of even such slight attention to the demands of humanity, the number of applicants for relief from the Marine-Hospital Service from that boat is notoriously small, and a desertion among the crew is almost unknown.

The space in the "texas" on many steamers is entirely taken up by the officers' quarters and bunks for the colored passengers; but there can be no objection, other than indifference or cupidity, to enlarging the "texas" sufficiently to accommodate the crew. There is certainly a large unoccupied space on the upper deck of all river steamers that could not be better utilized than for the protection of the poor roustabout.

River men seem to be agreed that nothing short of proper legislation will effect the prompt relief which the exigency demands; and when so much suffering can be so easily relieved and so much sickness so easily prevented, the means should be adopted to accomplish the desired result.

MEDICAL REPORT OF THE CRUISE OF THE REVENUE CUTTER RUSH.

By Asst. Surg. J. H. OAKLEY.

UNITED STATES MARINE HOSPITAL,
San Francisco, Cal., October 8, 1895.

SIR: In compliance with Bureau orders of October 7, 1895, directing me to make a report on the medical work done by myself while serving as medical officer of the revenue cutter *Rush* during the cruise in Bering Sea just ended, I have the honor to submit the following report:

Leaving San Francisco at noon on the 27th of April, the *Rush* visited Port Townsend and New Whatcom, Wash., and the following Alaskan ports or villages: Sitka, Port Mulgrave on Yakutat Bay, Port Etches, on Prince Williams Sound, Kadiak, Karluk, Wood Island, Unga, Belkofsky, Dutch Harbor, Unalaska, Chernofski, Nikoloski, Machucin, St. Paul, and St. George. Natives were treated ashore at Port Etches and Port Mulgrave, where an epidemic of influenza was prevailing at the time of our visit, viz, the latter part of May. Natives were also treated at Unalaska, Dutch Harbor, and Belkofsky.

By direction of the honorable Secretary of the Treasury, fifteen officers of the Revenue-Cutter Service were examined as to their physical qualifications for promotion. By direction of the first lieutenant of the *Rush*, two seamen were examined physically for enlistment aboard the *Rush*.

At 12.30 a. m., July 25, the British sealer *Mary Ellen*, from Japan, thirty-one days out, arrived with three of the crew sick. Rumor spread among the sealing fleet then in port that the disease was smallpox. An immediate investigation proved the rumor to be false.

Patients were treated aboard the following American vessels: Barks *Lydia*, *California*, *Mermaid*, *Alice Knowles*, *Sonoma*, steamers *Bertha* and *Jeanie*, and sealing schooners *Allie S. Alger*, *Effinger*, *Bering Sea*, *Deeahks*, *Columbia*, and *M. M. Morrill*. The following British sealing schooners furnished a few patients: *Mary Ellen*, *Otto*, *Dora Selwerd*, and *Victoria*.

The general health aboard the *Rush* was good.

The prevailing diseases among the natives were found to be scrofula, syphilis, and tuberculosis.

Following is a tabulated statement of relief furnished:

Officers treated aboard *Rush*	6
Seamen treated aboard *Rush*	20
Seamen treated aboard other American vessels	20
Natives treated aboard British vessels	10
Natives treated ashore	27
Passengers treated aboard American vessels	6
Americans treated ashore	3
Total	92
Officers examined physically	15
Seamen examined physically	2
American vessels furnishing patients	13
British vessels furnishing patients	4

I have the honor to remain, very respectfully, yours,

J. H. OAKLEY,
Assistant Surgeon, M. H. S.

To the SURGEON-GENERAL, M. H. S.

CANCER OF PYLORUS.

By Acting Asst. Surg. JAY TUTTLE.

C. N.; aged 33 years; nativity, Finland; admitted to the marine ward of St. Mary's Hospital, Astoria, Oreg., November 15; died December 9, 1894.

History.—Patient had been ailing for five months, and for two months had vomited the contents of the stomach, nothing passing that viscus; he had entered the hospital under the care of another surgeon October 20, and had been treated with occasional lavage of the stomach; his condition at the time of entering the marine ward was that of extreme emaciation with marked carcinomatous cachexia; abdomen retracted, and the outlines of a large tumor plainly visible below the ensiform cartilage. The case had been correctly diagnosed by the surgeon previously in charge of it as pyloric cancer. At request of the patient an operation was done for his relief. An incision was made from the ensiform cartilage along the border of the ribs on the right side for 5 inches, disclosing a cancerous mass involving the pyloric end of the stomach for a distance of 2 inches, and the duodenum and adjacent parts matted together by adhesions, and rapidly breaking down in the ulcerative process of cancer; the intestines beyond the duodenum were empty and flaccid; excision being impracticable, a gastro-enterostomy was done with a Murphy button, No. 4, the largest size, uniting the inferior border of the stomach, about 2 inches from the diseased portion, to the jejunum at its junction with the duodenum; abdomen was washed out with hot bichloride solution, incision united, and patient returned to the ward in very good condition, operation having occupied about thirty minutes. Patient rallied well, and was given hot milk and water in teaspoonful doses frequently during the first twenty-four hours, gradually increasing the amount till he was taking quite sufficient for his nourishment; he did not vomit at any time after the operation; the temperature never rose above 100° F.; he had no pain, no tympanitis, and a natural evacuation occurred on the fifth day; the sutures were removed on the eighth day. He continued to improve in appearance and strength to the sixteenth day after the operation, when, without apparent immediate cause, during the night, he died without pain.

Necropsy (*ten hours after death*).—Examination showed that the union between the stomach and intestine was perfect, that there had been no peritonitis, and that the opening was something more than a half inch in diameter, without abrasion or any considerable cicatricial tissue; the button was found at the flexure of the transverse and descending colon, having passed the ileocæcal valve without difficulty; the cancerous ulcerative process had continued as was expected.

COMBINED PERINEAL SECTION AND SUPRAPUBIC CYSTOTOMY FOR RELIEF OF IMPERMEABLE STRICTURE.

By Acting Asst. Surg. William H. Fisher.

W. R.; aged 33 years; nativity, Ireland; contracted a gonorrhœa some five years previously to application for relief, claiming a cure.

In the deposition of this organic material and the insidious nature of its formation it is surprising to note that no evidence whatever was apparent as to the pathological changes taking place; he suffered in the interim no pain, no discharge, and no former retention.

After a night of alcoholic excess, he presented himself on the 3d day of June for the relief of retention of urine. The bladder was distended to such a degree that it reached almost to the umbilicus. After repeated failure to enter bladder by natural route, preliminary aspiration above the pubes was practiced. He was removed to the marine wards of St. Vincent Hospital, Toledo, Ohio, and for three days treated with hot baths, opium, and belladonna, and aspiration continued, all of no avail.

Operation.—Patient was anæsthetized with a. c. e. Due aseptic and antiseptic precautions having been taken, it was deemed advisable to pass a guide through the stricture. After careful manipulations with filliforms and small, flexible bougies, it was found impossible to pass through the coarctation. In this "emergency of genito-urinary surgery" the choice of two procedures presented itself: (1) perineal section without a guide; (2) suprapubic section and retrograde catheterization combined with perineal section. To be guided by existing conditions, I determined to perform, if possible, perineal section without a guide, the original operation as perfected by Syme and modified by Wheelhouse. A medium-sized sound having been passed to the seat of obstruction, a perineal incision was made in the median line, cutting down upon the point of the sound and freely opening the urethra in front of the stricture. Considerable periurethral induration and thickening was found. In facilitating the finding of the opening in the stricture, ligatures were passed through the edges of the wound, including the divided urethra, the point of the staff was turned out of the wound in the perineum. The tension of the ligatures, the sound elevated, gave a clear field of view.

After repeated endeavors to find opening with a small-sized probe, continuing with Wheelhouse's operation, I dissected carefully, guided by sense of touch and knowledge of the anatomy of region, in the direction of the neck of the bladder, cutting the cicatricial tissue by slight strokes of the point of the knife. This also proved unavailing. I then had recourse to suprapubic cystotomy, to the details of which I will but briefly allude. A longitudinal incision was made, about 5 cm. long, directly over the symphisis pubis. It was not deemed necessary to disturb the attachments of the muscles, but they were pressed and held aside with blunt retractors. The loose areolar tissue was pushed up, presenting the anterior surface of the bladder in the field of operation. On either side of the proposed incision silk threads were passed to support the organ when emptied, and to resist the downward pressure on anterior wall, in order to prevent a separation of the bladder from the tissues anterior. Hugging closely the pubes, an upward incision was made of sufficient length to admit the passage of a catheter, which readily found its way into the urethra. The catheter as a guide, the perineal incision was enlarged, and the strictured portion cut and excised.

Owing to the failing condition of patient the bladder wound was not sutured. A straight fenestrated rubber tube was passed through and through the bladder from the upper to the lower wound. Patient reacted rapidly on the administration of strychnine and stimulants.

Bladder was washed daily with antiseptic fluids. On the fourth day tube was removed, and perineal drainage was used alone. Ten days later drainage was abandoned, water passed naturally, and wounds healed readily. At the discontinuance of drainage, a No. 3 English sound was passed and continued for some time, but was replaced by increasing sizes, till at date of discharge, July 23, a No. 13 easily passed

With the exception of the development of an orchitis and a phlebitis of penis, the physical being of the patient exceeded expectations—his highest temperature 39° C.; his highest pulse rate 120°, and the different organs of the body peformed their functions well.

Three months later I received a letter from him stating he was well, that the wounds had remained closed, and that a No. 20 English sound had been passed.

STATISTICS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE.

STATISTICS OF THE UNITED STATES MARINE-HOSPITAL SERVICE.

The following statistical tables are self-explanatory:

TABLE I.—COMPARATIVE TABLE OF NUMBER TREATED—1868 TO 1895.

The following tabular statement will serve to illustrate its growth since the reorganization of the Marine-Hospital Service in 1871:

Operations of the Marine-Hospital Service from July 1, 1868, to June 30, 1895.

Fiscal years.	Number of places at which relief was furnished.	Number of sick and disabled seamen furnished relief.
Prior to reorganization:		
1868	64	11, 535
1869	64	11, 356
1870	74	10, 560
After reorganization:		
1871	72	14, 256
1872	81	13, 156
1873	91	13, 529
1874	91	14, 356
1875	94	15, 009
1876	94	16, 808
1877	100	15, 175
1878	210	18, 223
1879	210	20, 922
1880	210	24, 860
1881		32, 613
1882		36, 184
1883		40, 195
1884		44, 761
1885		41, 714
1886		43, 822
1887		45, 314
1888		48, 203
1889		49, 518
1890		50, 671
1891		52, 992
1892		53, 610
1893		53, 317
1894		52, 803
1895		52, 643

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1895.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1894.	Admitted during the year.	Total treated in hospital.	Discharged	Died.	Remaining in hospital June 30, 1895.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.	Tonnage tax collected.
Total	**52,643**	**870**	**12,092**	**12,962**	**11,652**	**437**	**873**	**385,082**	**39,681**	**60,800**	**2,920**	**$575,569.87**	[1] **$523,344.61**
Albany, N. Y	8	1	7	8	7		1	649			5	742.00	
Alexandria, Va	66		5	5	5			62	61	137		602.95	71.49
Apalachicola, Fla	77	1	25	26	26			506	51	68		866.00	2,377.41
Ashland, Wis	57	4	18	22	22			416	35	36		603.55	
Ashtabula, Ohio	270	5	41	46	41	1	4	871	224	466		1,219.18	
Astoria, Oreg	53	4	23	27	25	1	1	608	26	38		906.20	5,621.25
Baltimore, Md	1,914	39	477	516	463	19	34	19,824	1,398	1,918	55	16,361.50	20,389.62
Bangor, Me	128	3	49	52	51		1	1,023	76	92	1	1,529.49	75.30
Barnstable Mass., and subports	131								131	259		256.89	42.96
Bath, Me	82		36	36	33	3		716	46	96		1,053.45	51.24
Beaufort, N. C	185		3	3	3			16	182	361		715.35	
Beaufort, S. C												59.35	3,995.94
Belfast, Me	25								25	59		181.20	155.76
Bismarck, N. Dak	33		9	9	9			230	24	52		422.04	
Boston, Mass	3,534	78	818	896	802	28	66	31,561	2,638	4,049	167	27,204.24	48,881.37
Brashear, La													3.42
Bridgeport, Conn	16	3	13	16	13		3	307				353.25	71.49
Bridgeton, N. J													124.74
Bristol, R. I													4.29
Brownsville, Tex												102.68	
Brunswick, Ga	122		36	36	32	4		734	86	111		927.51	7,233.73
Buffalo, N. Y	2,083	24	285	309	284	5	20	8,455	1,774	2,590	111	10,345.24	
Burlington, Iowa	9		9	9	9			148				199.80	
Burlington, Vt													444.78
Cairo, Ill	1,134	12	296	308	293	6	9	4,551	826	1,078	33	8,404.75	
Cambridge, Md	151		16	16	16			284	135	388		347.63	
Cape Vincent, N. Y													325.23
Castine, Me												10.00	93.30
Cedar Keys, Fla	151								151	184		194.00	
Charleston, S. C	1,071	11	185	196	180	10	6	4,108	875	1,270	137	6,941.43	4,351.38
Chattanooga, Tenn	31		3	3	2		1	58	28	90		339.62	
Chicago, Ill	2,582	39	414	453	390	24	39	17,224	2,129	2,706	164	22,028.04	7.89
Cincinnati, Ohio	874	20	237	257	221	12	24	8,447	617	827	39	12,136.65	
Cleveland, Ohio	1,394	15	297	312	285	12	15	9,076	1,082	1,528	56	8,979.83	177.21
Corpus Christi, Tex	9	2	2	4	3	1		72	5	5	26	390.55	
Coos Bay													10.31
Darien, Ga	18								18	24		220.27	
Delaware Breakwater, Del	40		23	23	22		1	551	17	21		964.24	
Detroit, Mich	1,562	29	232	261	231	4	26	11,078	1,301	1,966	96	12,815.33	143.61

Dubuque, Iowa	65	4	42	46	42		4	879	19	25	10	1,180.15	
Duluth, Minn	298	1	41	42	38	1	3	951	256	313	49	1,076.23	134.19
Eastport, Me												89.00	982.02
Edenton, N. C	151		4	4	4			84	147	259		496.50	
Edgartown, Mass.[2]												67.50	192.03
Elizabeth City, N. C	99								99	129		250.00	
Ellsworth, Me	67		3	3	3			80	64	338		190.00	89.40
Erie, Pa	76	5	23	28	28			999	48	49		1,127.46	
Escanaba, Mich	102	1	16	17	16		1	405	85	108		836.06	
Eureka, Cal	38		18	18	17		1	294	20	28		579.60	67.23
Evansville, Ind	1,117	10	241	251	226	6	19	6.825	866	1,281	28	9.024 37	
Fall River, Mass													98.64
Fernandina, Fla	29		10	10	9		1	394	19	36		747.00	2,411.04
Fredericksburg, Va	113	1	11	12	11	1		207	101	200		348.80	
Fort Benton, Mont													132.35
Gallipolis, Ohio	220	8	120	128	112	1	15	3,132	92	215		3,072.18	
Galveston, Tex	652	6	205	211	197	6	8	3,963	441	562	130	7,099.42	18,473.57
Georgetown, D. C	127	4	18	22	20	2		448	105	147		351.00	
Georgetown, S. C	130	1	11	12	12			187	118	311		436.70	26.28
Gloucester, Mass	399								399	477		677.03	1,029.63
Government Hospital for the Insane, Washington, D. C	25	21	4	25	1	3	21	7,652				4,939.13	
Grand Haven, Mich	53		7	7	6	1		191	46	137		550.08	
Green Bay, Wis	73		13	13	9	2	2	148	60	82		561.12	
Hartford, Conn	4		4	4	3		1	90				126.60	
Jacksonville, Fla	176		110	110	107		3	3,456	66	96		3,688.50	105.72
Key West, Fla	985	11	93	104	92	4	8	4,401	881	1,103	13	6,881.98	2,307.18
La Crosse, Wis	80	3	51	54	50		4	1,040	26	62	11	1,544.52	
Lewes, Del	19		9	9	9			118	10	16		178.90	
Little Rock, Ark	26		2	2	2			27	24	47	29	267.00	
Los Angeles, Cal													1,712.82
Louisville, Ky	556	9	188	197	185	6	6	4,106	359	684	17	8,774.80	
Ludington, Mich	81		12	12	11		1	203	69	115		447.79	
Machias, Me	56	1	23	24	22	1	1	649	32	40		887.19	285.90
Manistee, Mich	105	1	23	24	22		2	434	81	193		725.71	
Marblehead, Mass													88.41
Marquette, Mich	37	1	10	11	9	1	1	258	26	26		530.00	
Marshfield, Oreg	171		25	25	22	1	2	734	146	231		1,301.80	
Memphis, Tenn	1,058	11	201	212	201	5	6	4,153	846	1,147	83	8,745.90	
Michigan City, Ind	45		1	1	1			8	44	127		628.70	
Milwaukee, Wis	772	20	272	292	273	3	16	7,098	480	924	43	6,502.79	
Mobile, Ala	911	24	240	264	240	7	17	7,046	647	950	170	11,754.10	8,402.10
Nashville, Tenn	197		26	26	24	1	1	314	171	434		815.60	
Newark, N. J												382.68	
New Bedford, Mass	56								56	98		213.77	285.36
Newbern, N. C	217	3	45	48	45		3	766	169	338		985.96	15.60
Newburyport, Mass													11.37
New Haven, Conn	58	2	41	43	42	1		1,129	15	17	64	1,418.70	280.26
New London, Conn	180	6	174	180	176	4		5,302				3,801.40	48.15
New Orleans, La	2,775	25	636	661	612	19	30	12,078	2,114	2,786	66	19,652.86	38,986.88

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[1] The amount actually received in the United States Treasury during the fiscal year was $521,240.78.

[2] Included in Vineyard Haven, Mass.

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1895—Continued.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1894.	Admitted during the year.	Total treated in hospital.	Discharged.	Died.	Remaining in hospital June 30, 1895.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.	Tonnage tax collected.
Newport, Ark	33	....	16	16	15	....	1	252	17	35	....	$527.29	....
Newport, R. I	57	1	22	23	19	2	2	452	34	40	....	795.25	$68.91
Newport News, Va	87	....	....	....	....	....	....	....	87	88	....	242.85	7,212.72
New York, N. Y	4,566	101	1,055	1,156	987	66	103	44,737	3,410	5,776	534	55,534.63	187,051.05
Norfolk, Va	1,991	23	374	397	362	15	20	9,124	1,594	2,013	63	12,741.92	2,639.25
Ogdensburg, N. Y	75	....	4	4	4			72	71	168		442.30	765.09
Oswego, N. Y	140	....	9	9	9	....	....	221	131	224	....	692.04	822.63
Pensacola, Fla	102	2	88	90	80	4	6	2,452	12	36	19	3,238.42	16,543.65
Philadelphia, Pa	1,910	33	500	533	479	18	36	14,342	1,377	1,726	33	23,301.88	47,521.59
Perth Amboy, N. J	....	....	....	....	....	....	....	....	....	....	....	....	297.48
Pittsburg, Pa	1,232	3	157	160	140	7	13	3,047	1,072	1,411	50	5,785.90	....
Plattsburg, N. Y	....	....	....	....	....	....	....	....	....	....	....	....	2,724.51
Plymouth, Mass	....	....	....	....	....	....	....	....	....	....	....	....	11.43
Port Huron, Mich	164	....	20	20	17	1	2	529	144	514	....	511.00	....
Portland, Me	1,044	14	207	221	201	8	12	6,006	823	860	66	10,016.70	6,014.55
Portland, Oreg	526	6	79	85	81	1	3	1,672	441	582	22	4,028.56	....
Portsmouth, N. H	38	....	21	21	19	....	2	461	17	27	....	598.00	68.52
Port Townsend, Wash	388	14	172	186	154	8	24	7,356	202	258	....	9,687.82	9,831.00
Providence, R. I	280	4	110	114	108	2	4	2,056	166	220	....	2,486.25	367.53
Richmond, Va	63	2	30	32	30	2	....	832	31	32	2	1,169.20	794.19
Rochester, N. Y	....	....	....	....	....	....	....	....	....	....	....	....	22.47
Rockland, Me	168	4	50	54	51	2	1	714	114	175	....	1,259.43	....
Rome, Ga	61	1	1	2	2	....	....	15	59	108	....	225.50	....
Sag Harbor, N. Y	3	....	....	....	....	....	....	....	3	22	....	126.00	29.73
Saginaw, Mich	102	5	29	34	34	....	....	1,015	68	98	....	943.15	....
St. Augustine, Fla	....	....	....	....	....	....	....	....	....	....	....	....	279.00
St. Marys, Ga	....	....	....	....	....	....	....	....	....	....	....	....	144.39
St. Louis, Mo	1,820	38	429	467	405	17	45	14,741	1,353	2,158	129	14,423.34	....
St. Paul, Minn	31	1	23	24	21	1	2	587	7	13	....	990.50	....
Salem, Mass	16	....	....	....	....	....	....	....	16	16	....	17.56	211.32
San Diego, Cal	111	....	36	36	30	1	5	622	75	133	....	2,941.78	2,828.38
Sandusky, Ohio	279	8	177	185	181	....	4	3,030	94	120	....	3,086.06	....
San Francisco, Cal	2,933	85	867	952	794	46	112	44,960	1,981	4,152	193	30,936.55	38,296.24
San Pedro, Cal	149	7	77	84	79	1	4	2,839	65	156	....	2,877.25	....
Sault Ste. Marie, Mich	289	12	97	109	101	2	6	1,742	180	224	....	1,789.35	....
Savannah, Ga	959	9	173	182	172	6	4	3,008	777	953	39	6,189.72	11,309.25
Seattle, Wash	668	7	134	141	117	10	14	4,416	527	1,041	95	4,282.38	....
Shieldsboro, Miss	....	....	....	....	....	....	....	....	....	....	....	....	4,869.93
Shreveport, La	153	....	13	13	12	....	1	333	140	922	....	987.24	....
Sitka, Alaska	3	....	....	....	....	....	....	....	3	3	....	3.00	467.55
Solomons Island, Md	344	....	26	26	25	1	....	334	318	391	....	765.60	....

Somers Point, N. J													
Stonington, Conn													26.76
Superior, Wis	81		19	19	19			440	62	91		639.85	
Tacoma, Wash	73	1	23	24	24			655	49	101		536.08	
Tampa, Fla												371.25	3,474.90
Tappahannock, Va	276	2	115	117	117			824	159	231		1,743.75	
Toledo, Ohio	272	5	132	137	127	2	8	2,224	135	252		2,091.95	17.97
Tuckerton, N. J	3								3	7		300.00	
Vicksburg, Miss	97	2	74	76	73	2	1	1,424	21	21		1,760.39	
Vinyard Haven, Mass	248	2	89	91	87	2	2	2,280	157	169		5,936.07	
Waldoboro, Me													644.52
Washington, D. C												18,567.77	54.72
Wheeling, W. Va	65		31	31	30	1		586	34	55		901.15	
Wilmington, Del													3,956.37
Wilmington, N. C	484	8	72	80	71	3	6	2,750	404	553	72	8,013.77	2,811.27
Wiscasset, Me	2								2	15		30.82	240.42
Cape Charles Quarantine	2		2	2	2			42				(1)	
Delaware Breakwater Quarantine	1		1	1	1			69					
Gulf Quarantine	6		3	3	3			33	3	7			
Key West Quarantine	74	1	21	22	19		3	448	52	95			
San Francisco (Cal.) Quarantine	5		5	5	5			67					

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[1] Appears elsewhere in "financial statement."

TABLE III.—SUMMARY OF PHYSICAL EXAMINATIONS OF SEAMEN MADE BY OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, YEAR ENDED JUNE 30, 1895.

Summary of examinations and causes of rejection.	Total.	Pilots.	Revenue marine.	Merchant marine.	Life-Saving Service.
Summary of examinations:					
Total number examined	2,920	1,255	390	72	1,203
Number passed	2,732				
Number rejected	188	51	67		70
Causes of rejection:					
Bubo, syphilitic			2		
Catarrh of lungs			1		
Catarrh of stomach			1		
Color blindness		49	12		28
Contusion of feet			1		
Deafness			2		
Deformity of ankle			1		
Disease of heart—					
Hypertrophy			3		
Mitral			4		
Valvular		1	1		8
Fistula in ano			1		
Fracture of ribs			1		
Hæmorrhoids			8		5
Hemiplegia					3
Hernia—					
Inguinal			2		3
Oblique			1		2
Hypertrophy of liver			1		
Impaired vision					2
Inflammation of intestines					1
Insufficient chest expansion			2		
Insufficient height			1		
Myopia			5		5
Paralysis			1		
Pleurisy			2		
Rheumatism					2
Strain of muscles of back			1		
Suppuration of lymph glands, groin					1
Syphilis		1	2		1
Tonsilitis, chronic			2		2
Tubercle of lungs			2		
Varicocele			2		
Varicose veins of legs			3		7
Wound of leg			2		

TABLE IV.—STATEMENTS, BY DISTRICTS, OF THE NUMBER OF PATIENTS TREATED DURING THE YEAR ENDED JUNE 30, 1895.

Districts.	Total cases.	Patients in hospital July 1, 1894.	Admitted during the year.	Total number treated in hospital.	Discharged.	Died.	Patients in hospital June 30, 1895.	Number of days hospital relief furnished.	Number of seamen furnished office relief.
Grand total	**52,643**	**870**	**12,092**	**12,962**	**11,652**	**437**	**873**	**385,082**	**39,681**
North Atlantic	6.331	107	1,428	1,535	1,396	48	91	45,998	4,796
Middle Atlantic	6,767	146	1,803	1,949	1,716	89	144	66,674	4,818
South Atlantic	8,798	124	1,725	1,849	1,685	66	98	55,094	6,949
The Gulf	5,876	72	1,303	1,375	1,264	41	70	30,866	4,501
The Ohio	4,292	50	1,003	1,053	940	34	79	26,515	3,239
The Mississippi	4,386	71	1,152	1,223	1,120	31	72	28,032	3,163
The Great Lakes	10,992	175	2,192	2,367	2,158	59	150	67,088	8,625
The Pacific	5,113	124	1,454	1,578	1,343	69	166	64,156	3,535
The quarantine stations	88	1	32	33	30		3	659	55

TABLE V.—RATIO OF PATIENTS TREATED IN HOSPITAL IN EACH DISTRICT.

Districts.	Per cent of total number of patients.	Districts.	Per cent of total number of patients.
North Atlantic	24.25	The Mississippi	27.88
Middle Atlantic	28.80	The Great Lakes	21.54
South Atlantic	21.02	The Pacific	30.86
The Gulf	23.40	The quarantine stations	37.50
The Ohio	24.53		

TABLE VI.—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT.

Districts.	Average number of days relief furnished to each patient.	Districts.	Average number of days relief furnished to each patient.
North Atlantic	29.97	The Mississippi	22.92
Middle Atlantic	34.21	The Great Lakes	28.34
South Atlantic	29.80	The Pacific	40.66
The Gulf	22.46	The quarantine stations	19.97
The Ohio	25.18		

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Grand total of all cases	**870**	**12,092**	**7,462**	**3,877**	**313**	**437**	**873**	**39,681**	**52,643**
GENERAL DISEASES	326	5,023	2,803	1,885	120	192	349	17,496	22,845
LOCAL DISEASES	427	5,186	3,165	1,634	171	230	413	18,909	24,522
POISONS AND POISONED WOUNDS	1	12	11	1			1	54	67
INJURIES AND AMPUTATIONS	116	1,871	1,483	357	22	15	110	3,222	5,209

NORTH ATLANTIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**107**	**1,428**	**965**	**408**	**23**	**48**	**91**	**4,796**	**6,331**
General Diseases	**39**	**519**	**318**	**183**	**7**	**23**	**27**	**2,034**	**2,592**
Cowpox								1	1
Measles		2	2					1	3
Scarlet fever		3	3					1	4
Influenza		14	13			1		108	122
Mumps		4	4					2	6
Diphtheria		4	4					3	7
Simple continued fever		3	3					6	9
Enteric fever	4	42	34			7	5	6	52
Sporadic cholera		1	1						1
Epidemic diarrhœa								1	1
Dysentery		9	8				1	8	17
Malarial intermittent fever	2	86	78	7		1	2	205	293
Malarial remittent fever	1	11	11	1				2	14
Malarial cachexia		5	5					13	18
Beriberi								3	3
Erysipelas:									
Simple		3	3					5	8
Phlegmonous		1	1						1
Septicæmia		1		1					1
Syphilis:									
Primary		3	1				2	18	21
Secondary	6	56		56	2		4	383	445
Gonorrhœa	4	49	35	17			1	621	674
Animal parasites		3	1	2				1	4
Effects of excessive venery		1					1	3	4
Scurvy		2	1	1				1	3
Alcoholism		4	2	1	1			20	24
Delirium tremens								1	1
Debility		5	3	2				36	41
Rheumatic fever	4	10	9	5				8	22
Rheumatism	6	127	75	52			6	484	617
Gout		1		1					1
Osteo-arthritis	2	2	2	2				2	6
Cysts	1	2	3						3
Nonmalignant new growth	2	11	11		1	1		29	42
Malignant new growth		2		1		1		1	3
Tubercle	6	39		27	2	11	5	44	89

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Scrofula		1	1						1
Purpura		1	1					2	3
Anæmia	1	10	3	7	1			13	24
Hæmophilia		1				1			1
Diabetes mellitus								2	2
Local Diseases	**51**	**675**	**446**	**188**	**15**	**24**	**53**	**2,249**	**2,975**
DISEASES OF THE NERVOUS SYSTEM	11	39	24	11	1	4	10	112	162
Conjestion of brain		1				1			1
Anæmia of spinal cord		1		1					1
Inflammation of cerebral membranes		1				1			1
Myelitis	1						1	2	3
Neuritis	4	6	8				2	1	11
Abscess of the brain		1				1			1
Sclerosis								2	2
Spastic spinal paralysis								1	1
Locomotor ataxy	3			2			1	1	4
Apoplexy		1				1			1
Hemiplegia	2	4		2			4	2	8
Paraplegia		1		1				1	2
Local paralysis								6	6
Glosso-labio-pharyngeal paralysis								1	1
Spasm of muscle		1	1					1	2
Neuralgia	1	12	9	3			1	38	51
Facial								11	11
Sciatica		4	4					9	13
Vertigo		2	2					3	5
Megrim								16	16
Epilepsy		2		1	1			8	10
Chorea		1					1		1
Hysteria		1		1				9	10
MENTAL DISEASES	3	5	1	4			3	25	33
Hypochondriasis								18	18
Insanity	1	1		1			1	2	4
Melancholia	1	3		2			2	[illegible]	9
Toxic insanity	1		1						1
Consecutive insanity		1		1					1
DISEASES OF THE EYE	2	14	7	4			5	57	73
Œdema of the conjunctiva								2	2
Conjunctivitis	1	2	3					37	40
Keratitis		2	1	1					2
Ulcer of cornea		1		1					1
Opacity of cornea		1	1						1
Iritis		5	2	1			2	4	9
Choroiditis								1	1
Atrophy of optic disc or papilla		1					1		1
Cataract	1	1					2		2
Ametropia								3	3
Night blindness								2	2
Day blindness								1	1
Stricture of nasal duct		1		1				2	3
Hæmatoma								1	1
Stye								2	2
Abscess of eyelid								2	2
DISEASES OF THE EAR	1	8	2	7				37	46
Acute inflammation of the external meatus		1	1					2	3
Accumulation of wax								6	6
Inflammation of the middle ear	1	6	1	6				27	34
Ulceration of membrana tympani								1	1
Deafness		1		1				1	2
DISEASES OF THE NOSE		3	3					34	37
Hypertrophy								1	1
Epistaxis		1	1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE NOSE—Continued.									
Inflammation								16	16
Nasal catarrh		1	1					14	15
Abscess		1	1					1	2
Ulceration								1	1
Ozæna								1	1
DISEASES OF THE CIRCULATORY SYSTEM	10	39	2	33	3	7	4	44	93
Pericarditis		1				1			1
Endocarditis		1		1					1
Valvular disease:									
Aortic	6	12		16		2		6	24
Mitral		12		7	1	1	3	17	29
Pulmonic	1			1					1
Hypertrophy of heart	1			1				3	4
Degeneration of heart, fatty								2	2
Dilatation of heart								2	2
Aneurism of heart	1			1				1	2
Angina pectoris								1	1
Syncope								1	1
Palpitation and irregular action of heart		3		2	1			9	12
Degeneration of arteries		2		2					2
Aneurism of arteries	1	6		2	1	3	4	2	9
Varix		2	2						2
DISEASES OF THE RESPIRATORY SYSTEM	5	104	67	31	1	6	4	471	580
Laryngitis, acute		2	1	1				17	19
Bronchitis:									
Acute		29	20	7	1		1	321	350
Chronic		13	5	7			1	55	68
Catarrhal		2		2				7	9
Spasmodic asthma		2	1	1				25	27
Hæmorrhage of lung		2	1	1				8	10
Pneumonia	3	31	23	5		5	1	10	44
Abscess of lung		1		1					1
Cirrhosis of lung								1	1
Pneumonic phthisis:									
Acute		1				1			1
Chronic		4		4					4
Emphysema								1	1
Pleurisy:									
Acute	2	15	14	2			1	18	35
Chronic								5	5
Empyema		1	1						1
Adhesions of pleura		1	1					3	4
DISEASES OF THE DIGESTIVE SYSTEM	2	138	101	24	5	3	7	487	627
Stomatitis		1	1					4	5
Noma								4	4
Cyst of the mouth								1	1
Abscess of the antrum		1					1		1
Inflammation of the dental pulp								1	1
Caries of dentine and cementum								13	13
Necrosis of dentine and cementum								3	3
Abscess of dental periosteum		1	1					4	5
Inflammation of gums and alveoli		1	1					1	2
Ulceration of gums and alveoli								2	2
Necrosis of the alveoli								6	6
Toothache								16	16
Suppuration of the alveoli								1	1
Hypertrophy of tonsils								1	1
Elongated uvula								1	1
Sore throat		4	4					31	35
Quinsy		7	5	1		1		6	13
Follicular tonsilitis	1	15	16					33	49
Salivation		1	1					1	2
Follicular inflammation of the pharynx		6	6					20	26
Hæmorrhage of the stomach								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Inflammation of the stomach		10	6	4				30	40
Dilatation of the stomach		1		1					1
Dyspepsia		8	5	3				19	27
Gastrodynia		1					1	1	2
Hæmorrhage of the intestines								1	1
Inflammation of the intestines:									
Catarrhal		6	5	1				5	11
Ulcerative		6	6					7	13
Abscess in the subperitoneal tissue		1		1					1
Hernia		12	5	4	3			77	89
Diarrhœa		28	22	4			2	100	128
Constipation		1	1					38	39
Colic		2	2					7	9
Ulceration of the rectum	1	1		1			1	1	3
Piles:									
Internal		2	1	1				22	24
External		11	7	2	1		1	21	32
Prolapsus of the rectum								1	1
Prolapsus of the anus								1	1
Fistula in ano		5	4	1					5
Congestion of the liver		1			1			1	2
Hepatitis		1					1	1	2
Perihepatitis								1	1
Cirrhosis of liver		1				1			1
Jaundice								2	2
Inflammation of hepatic ducts and gall bladder		1	1						1
Gallstones								1	1
Ascites		1				1			1
Peritonitis		1	1						1
DISEASES OF THE LYMPHATIC SYSTEM	2	63	50	10	3		2	65	130
Hypertrophy of lymph glands		1		1				10	11
Inflammation of lymph vessels		1	1					1	2
Inflammation of lymph glands	2	39	33	5	2		1	41	82
Suppuration of lymph glands		21	16	4			1	13	34
Lymphadenoma		1			1				1
DISEASES OF THE THYROID BODY		1		1				2	3
Inflammation		1		1					1
Goitre								2	2
DISEASES OF THE URINARY SYSTEM	1	19	8	5		3	4	74	94
Acute nephritis		1	1						1
Bright's disease	1	4	1			3	1	11	16
Pyelitis								1	1
Calculus in ureter		1					1		1
Diabetes insipidus		1		1					1
Hæmaturia		1	1						1
Lithuria								2	2
Inflammation of bladder:									
Acute		8	4	3			1	38	46
Subacute		1	1					3	4
Chronic		2		1			1	7	9
Irritability of bladder								6	6
Retention of urine								2	2
Incontinence of urine								4	4
DISEASES OF THE GENERATIVE SYSTEM	7	101	64	36	2		6	351	459
Urethritis		3		3				32	35
Gleet								9	9
Lacunar abscess								1	1
Urinary abscess								2	2
Ulcer of the urethra	1			1				1	2
Stricture of urethra, organic	3	36	16	18	1		4	99	138
Urinary fistula		1		1				1	2
Hypertrophy of prostate gland								1	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Acute inflammation of prostate gland								1	1
Chronic inflammation of prostate gland		1	1					2	3
Inflammation of the penis								1	1
Inflammation of glans penis								8	8
Ulcer of penis	2	36	31	6			1	125	163
Phimosis		1	1					2	3
Paraphimosis								1	1
Œdema of the scrotum								1	1
Inflammation of the scrotum								1	1
Varicocele		1		1				7	8
Hydrocele of tunica vaginalis		3	1	2				19	22
Orchitis:									
Acute		7	5		1		1	15	22
Chronic		1	1						
Epididymitis	1	9	6	4				14	24
Inflammation of testicle								2	2
Cyst of testicle		2	2						2
Spermatorrhœa								6	6
DISEASES OF THE ORGANS OF LOCOMOTION	1	38	27	6			6	49	88
Ostitis		1		1					1
Periostitis		2	2					1	3
Caries		1					1		1
Necrosis	1	6	5	1			1	4	11
Synovitis:									
Acute		8	7				1	14	22
Chronic		11	6	3			2	2	13
Loose cartilage								1	1
Dislocation of articular cartilage		2	2						2
Psoas, lumbar, and other abscesses		2		1			1		2
Inflammation of muscles		1	1					4	5
Inflammation of tendons								2	2
Contraction of tendons and fasciæ		1	1					1	2
Inflamed bursa		2	2					15	17
Thecal abscess		1	1					4	5
Bunion								1	1
DISEASES OF THE CONNECTIVE TISSUE	1	19	17	2		1		78	98
Œdema		1	1					3	4
Inflammation	1	1	2					32	34
Abscess		17	14	2		1		43	60
DISEASES OF THE SKIN	5	78	68	13			2	283	366
Erythema		1	1					4	5
Roseola								1	1
Urticaria		1	1					11	12
Eczema	1	8	6	3				50	59
Pityriasis								4	4
Psoriasis		2	1	1				4	6
Herpes		1	1					16	17
Zona		1	1					3	4
Pemphigus								1	1
Acne								4	4
Sycosis		3	3					3	6
Steatorrhœa								1	1
Alopecia								1	1
Frostbite		16	15	1				29	45
Ulcer	3	25	21	5			2	42	70
Fissures								1	1
Boil	1	9	9	1				65	75
Carbuncle		2	2					3	5
Gangrene								1	1
Whitlow		6	5	1				31	37
Onychia		1	1					1	2
Corn								2	2
Lupus								1	1
Wen		2	1	1				3	5
Pruritus								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
PARASITIC DISEASES OF THE SKIN	......	4	4	......	......	....	......	48	52
Ringworm	......	......	......	......	......	....	......	14	14
Tinea versicolor	......	......	......	......	......	....	......	2	2
Itch	......	3	3	......	......	....	......	31	34
Phthiriasis	......	......	......	......	......	....	......	1	1
Pediculus vestimenti	......	1	1	......	......	....	......	......	1
POISONED WOUNDS	......	2	1	1	......	....	......	32	34
Vegetable substances	......	2	1	1	......	....	......	32	34
Injuries	**17**	**234**	**201**	**37**	**1**	**1**	**11**	**513**	**764**
GENERAL INJURIES	......	15	15	......	......	....	......	50	65
Burns and scalds	......	7	7	......	......	....	......	15	22
Effects of cold	......	2	2	......	......	....	......	33	35
Heat-stroke	......	1	1	......	......	....	......	......	1
Multiple injury	......	5	5	......	......	....	......	2	7
LOCAL INJURIES	17	219	186	37	1	1	11	463	699
Wound of arteries	......	1	1	......	......	....	......	......	1
Rupture of veins	......	1	1	......	......	....	......	......	1
Strain of muscles	......	4	4	......	......	....	......	27	31
Strain of tendons	......	......	......	......	......	....	......	3	3
Abrasion of skin	......	......	......	......	......	....	......	4	4
Foreign body in subcutaneous tissue	......	1	1	......	......	....	......	1	2
Scalp wound:									
Bone not exposed	......	8	6	2	......	....	......	25	33
Bone exposed	......	2	2	......	......	....	......	2	4
Contusion of skull	......	1	1	......	......	....	......	1	2
Concussion of brain	......	2	1	......	......	1	......	1	3
Contusion of face	1	4	4	1	......	....	......	3	8
Wound of face and mouth	......	5	4	1	......	....	......	17	22
Fracture of facial bones	1	3	3	1	......	....	......	......	4
Dislocation of nasal cartilages	......	1	1	......	......	....	......	......	1
Fracture of the inferior maxillary	......	3	1	1	......	....	1	......	3
Contusion of the eye with rupture of sclerotic	......	1	1	......	......	....	......	......	1
Foreign body in cornea or conjunctiva	......	......	......	......	......	....	......	6	6
Dislocation of the hyoid bone	......	......	......	......	......	....	......	1	1
Foreign body in the pharynx	......	......	......	......	......	....	......	1	1
Contusion of the chest	......	6	4	2	......	....	......	20	26
Fracture of the ribs	1	13	12	2	......	....	......	8	22
Wound of parietes of chest	......	1	1	......	......	....	......	......	1
Contusion of back	......	14	13	1	......	....	......	17	31
Sprain of back	......	1	1	......	......	....	......	9	10
Wound of back	......	......	......	......	......	....	......	2	2
Fracture of spine	......	1	......	......	......	....	1	......	1
Concussion of cord	......	1	1	......	......	....	......	......	1
Contusion of abdomen	......	2	1	1	......	....	......	7	9
Wound of parietes of abdomen	......	1	1	......	......	....	......	3	4
Contusion of the pelvis	......	1	1	......	......	....	......	......	1
Contusion of the urethra, perineum, scrotum, and penis	......	......	......	......	......	....	......	2	2
Rupture of urethra	......	2	2	......	......	....	......	1	3
Foreign body in the rectum	......	......	......	......	......	....	......	1	1
Fracture and dislocation of pelvis	......	1	......	1	......	....	......	......	1
Wound of testicle	......	......	......	......	......	....	......	1	1
Contusion of upper extremities	......	7	5	2	......	....	......	51	58
Sprain of the shoulder	......	1	1	......	......	....	......	2	3
Sprain of the elbow	......	......	......	......	......	....	......	1	1
Sprain of the wrist	......	3	2	1	......	....	......	14	17
Sprain of the fingers	......	2	1	1	......	....	......	5	7
Wound of the upper extremities	2	47	41	6	......	....	2	112	161
Green-stick fracture of radius	......	......	......	......	......	....	......	1	1
Fracture of the clavicle	......	2	1	......	......	....	1	2	4
Fracture of the scapula	......	1	1	......	......	....	......	......	1
Fracture of the humerus	1	3	3	1	......	....	......	1	5
Fracture of the radius	......	3	2	1	......	....	......	1	4
Fracture of the ulna	......	1	1	......	......	....	......	......	1

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1895—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
LOCAL INJURIES—Continued.									
Fracture of both bones of forearm		1	1						1
Fracture of carpus, metacarpus, and phalanges	1	3	3	1				4	8
Dislocation of the clavicle								1	1
Dislocation of the scapula		1		1					1
Dislocation of the humerus		4	3	1				3	7
Dislocation of the radius and ulna								1	1
Dislocation of the phalanges of thumb		1	1						1
Dislocation of the phalanges of fingers								1	1
Contusion of the lower extremities		20	17	2			1	40	60
Sprain of the knee		3	2	1				5	8
Sprain of the ankle	3	12	15					22	37
Sprain of the foot								1	1
Wound of the lower extremities	1	8	7	2				22	31
Wound of joint, lower extremities		1	1						1
Fracture of femur	1	2	1				2	3	6
Fracture of cervix femoris	1			1					1
Fracture of leg, both bones	1	5	3		1		2	2	8
Fracture of tibia alone	1	3	2	1			1	1	5
Fracture of fibula alone	1	1	1	1					2
Fracture of metatarsus		1	1						1
Fracture of phalanges of toes								2	2
Dislocation of the knee	1			1					1
Dislocation of the foot at the ankle								1	1
Dislocation of the astragalus								1	1
Dislocation of the metatarsus and phalanges		2	2						2

MIDDLE ATLANTIC.

TOTAL CASES	**146**	**1,803**	**1,017**	**646**	**53**	**89**	**144**	**4,818**	**6,767**
General Diseases	**64**	**738**	**372**	**299**	**16**	**49**	**66**	**2,173**	**2,975**
Measles								1	1
Dengue		1		1					1
Influenza		27	21	5		1		61	88
Mumps		2	1	1					2
Diphtheria		1				1			1
Enteric fever	1	17	29	6		10	3		48
Dysentery		11	9	2				16	27
Malarial intermittent fever	8	127	118	10		1	6	311	446
Malarial remittent fever	1	25	20	1		2	3	21	47
Malarial cachexia	1	21	6	12			4	9	31
Beriberi		4	3	1					4
Erysipelas, simple		4	4					2	6
Septicæmia		1	1						1
Syphilis:									
Primary	2	14	6	8			2	18	34
Secondary	9	86	12	69	3		11	563	658
Gonorrhœa	3	38	31	8	1	1		515	556
Animal parasites		5	5					3	8
Effects of excessive venery								2	2
Scurvy								2	2
Alcoholism		13	10	3				12	25
Hypospadias		1		1					1
Debility	1	6	3	4				59	66
Rheumatic fever	2	13	9	5			1	16	31
Rheumatism	13	168	75	94	1	1	10	388	569
Osteo-arthritis	1	1		1			1		2
Cysts	1		1						1
Nonmalignant new growth		8	6	1			1	13	21
Malignant new growth	1	3	2	1		1			4
Tubercle	20	102		62	10	30	20	151	273
Scrofula		2		1			1		2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Anæmia		3		1		1	1	10	13
Hæmophilia		1		1					1
Diabetes mellitus		3			1		2		3
Local Diseases	**70**	**816**	**457**	**292**	**37**	**39**	**61**	**2,298**	**3,184**
DISEASES OF THE NERVOUS SYSTEM	11	45	12	23	6	7	8	99	155
Hæmorrhage, cerebral	2	3	1	1			3	1	6
Spinal meningitis		1		1					1
Myelitis		1		1					1
Neuritis		2		1			1	2	4
Spastic spinal paralysis	1					1			1
Locomotor ataxy	1	4		3	1		1	2	7
Paralysis	2				1	1		3	5
Hemiplegia	2	4		3		1	2	1	7
Local paralysis		9	3	3	3			4	13
Glosso-labio-pharyngeal paralysis		1				1			1
Neuralgia	1	5	4	2				41	47
Facial		3	3					4	7
Sciatica		6	1	2	1	1	1	2	8
Vertigo								3	3
Megrim								13	13
Epilepsy	2	6		6		2		13	21
Hysteria								10	10
MENTAL DISEASES	2	3	2	2	1			1	6
Hypochondriasis		1	1					1	2
Mania		1	1						1
Melancholia	2	1		2	1				3
DISEASES OF THE EYE	1	15	6	7	1		2	43	59
Conjunctivitis		6	2	4				25	31
Pterygium		1			1				1
Iritis		6	3	2			1	10	16
Cataract		1					1	5	6
Ametropia								2	2
Blepharitis		1		1					1
Abscess of eyelid								1	1
Entropion	1		1						1
DISEASES OF THE EAR		8	4	4				31	39
Inflammation of the external meatus, acute		1	1					1	2
Abscess of the external meatus								3	3
Accumulation of wax		1	1					4	5
Inflammation of the middle ear		5	2	3				17	22
Obstruction of Eustachian tube								1	1
Tinnitus		1		1					1
Deafness								5	5
DISEASES OF THE NOSE		4	3	1				33	37
Epistaxis		2	2					1	3
Inflammation								1	1
Nasal catarrh		2	1	1				30	32
Ulceration								1	1
DISEASES OF THE CIRCULATORY SYSTEM	6	37		30	3	5	5	59	102
Pericarditis		3		2		1			3
Endocarditis		1		1					1
Valvular disease:									
Aortic	1	7		5	1		2	14	22
Mitral	4	19		17	1	4	1	23	46
Tricuspid		1		1					1
Hypertrophy of heart								5	5
Degeneration of heart, fatty								1	1
Aneurism of heart								2	2
Angina pectoris								2	2
Palpitation and irregular action of heart		1		1				9	10

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Degeneration of arteries		1		1					1
Aneurism of arteries		2		1			1		2
Varix	1	2		1	1		1	3	6
DISEASES OF THE RESPIRATORY SYSTEM	5	146	58	62	6	14	11	519	670
Hay asthma								1	1
Laryngitis, acute		1					1	15	16
Abscess of larynx								1	1
Bronchitis:									
Acute		69	31	36	1		1	413	482
Chronic	3	10	1	6	2	2	2	40	53
Spasmodic asthma		5	2	3				8	13
Passive congestion of lung		1				1			1
Pneumonia		36	17	7		6	6		36
Pneumonic phthisis, chronic	1	7		1	3	4		15	23
Emphysema		1		1					1
Pleurisy:									
Acute		16	7	7		1	1	22	38
Chronic	1			1				4	5
DISEASES OF THE DIGESTIVE SYSTEM	8	159	95	46	5	8	13	599	766
Ulcerative stomatitis								2	2
Noma								6	6
Toothache								10	10
Sore throat		1	1					8	9
Quinsy		5	2	2			1	1	6
Follicular tonsilitis		15	10	5				34	49
Abscess of salivary glands		2	2						2
Follicular inflammation of the pharynx		1	1					29	30
Hæmorrhage of the stomach		1	1						1
Inflammation of the stomach	1	25	11	10	1	4		28	54
Ulceration of the stomach								1	1
Dyspepsia		5	1	4				127	132
Gastrodynia		3	2				1		3
Inflammation of the intestines, catarrhal		5	4				1	3	8
Appendicitis		4	2			2			4
Hernia	1	6	3	3	1			146	153
Diarrhœa	3	34	32	5				115	152
Constipation		4	2	2				49	53
Colic		2	2					1	3
Hæmorrhage of the rectum		3	1				2		3
Abscess of the rectum		3	2	1					3
Ulceration of the rectum		4	2	1	1			1	5
Piles:									
Internal		7	3	1	1		2	14	21
External		2	1		1			13	15
Prolapsus of the rectum	1	2		2			1	1	4
Prolapsus of the anus		1					1		1
Stricture of the rectum	1						1		1
Fistula in ano		6	1	3			2	2	8
Congestion of the liver	1	5	2	4				1	7
Hepatitis		4	1	2		1			4
Cirrhosis of liver		1					1	1	2
Jaundice		4	4					5	9
Inflammation of hepatic ducts and gall bladder		1	1						1
Obstruction of hepatic ducts and gall bladder		1				1			1
Gallstones								1	1
Ascites		1		1					1
Omental hernia		1	1						1
DISEASES OF THE LYMPHATIC SYSTEM	8	75	65	14	4			67	150
Inflammation of lymph vessels								2	2
Inflammation of lymph glands	4	50	40	10	4			61	115
Suppuration of lymph glands	4	25	25	4				4	33

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE URINARY SYSTEM	2	40	12	20	2	1	7	64	106
Congestion of kidney								2	2
Acute nephritis		5	2	2		1		13	18
Bright's disease	2	13	1	9			5	8	23
Pyelitis								1	1
Calculus in kidney								1	1
Nephralgia		1	1						1
Diabetes insipidus		1		1					1
Hæmaturia		2	1	1				1	3
Inflammation of bladder:									
Acute		16	6	7	2		1	29	45
Subacute								1	1
Calculus of bladder		1					1	2	3
Retention of urine		1	1						1
Incontinence of urine								5	5
Spasm of bladder								1	1
DISEASES OF THE GENERATIVE SYSTEM	5	116	75	38	2	1	5	325	446
Urethritis		1	1						1
Gleet		1	1					10	11
Stricture of urethra									
Organic	1	23	12	9		1	2	30	54
Spasmodic		1	1						1
Urinary fistula		1	1						1
Extravasation of urine		1	1						1
Acute inflammation of prostate gland								7	7
Œdema of the penis								4	4
Inflammation of glans penis		2	2					4	6
Ulcer of penis	2	39	16	21	1		3	187	228
Phimosis		10	5	4	1			7	17
Paraphimosis		4	4					2	6
Priapism								1	1
Œdema of the scrotum		1	1					1	2
Abscess of the scrotum		1	1					1	2
Inflammation of spermatic cord								1	1
Variocele		1	1					25	26
Hydrocele of tunica vaginalis	1	5	6					7	13
Orchitis:									
Acute		21	19	2				29	50
Chronic								2	2
Epididymitis	1	4	3	2				5	10
Spermatorrhœa								1	1
Impotence								1	1
DISEASES OF THE ORGANS OF LOCOMOTION	7	31	21	8	4	1	4	16	54
Ostitis		1	1						1
Periostitis	1	5	1	3	2			1	7
Caries		1					1		1
Necrosis	1	4	5					3	8
Synovitis, acute	2	10	7	2	2		1	12	24
Ankylosis		5	2	1			2		5
Psoas, lumbar, and other abscesses	1		1						1
Caries and necrosis of spine	1					1			1
Abscess of muscles	1			1					1
Inflamed bursa		5	4	1					5
DISEASES OF THE CONNECTIVE TISSUE	7	46	42	8	2		1	110	163
Œdema		2	1	1				2	4
Inflammation	1	6	7					30	37
Abscess	6	38	34	7	2		1	78	122
DISEASES OF THE SKIN	8	89	72	17	1	2	5	282	379
Erythema								4	4
Urticaria								5	5
Eczema		7	6				1	71	78
Pityriasis		1					1		1
Miliaria	1		1						1
Herpes								3	3
Zona		1	1					5	6

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1895—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Acne								3	3
Sycosis								11	11
Chilblain								3	3
Frostbite		15	14			1		12	27
Ulcer	7	44	33	13	1	1	3	118	169
Fissures								1	1
Boil		5	5					30	35
Carbuncle		8	5	3				12	20
Whitlow		6	5	1					6
Lupus								1	1
Wen		2	2					3	5
PARASITIC DISEASES OF THE SKIN		2		2				50	52
Ringworm		1		1				5	6
Favus		1		1					1
Itch								44	44
Unclassified								1	1
Injuries	**12**	**249**	**188**	**55**		**1**	**17**	**347**	**608**
GENERAL INJURIES	1	22	18	3		1	1	26	49
Burns and scalds	1	16	15	1			1	26	43
Effects of cold		4	1	2		1			1
Multiple injury		1	1						1
Exhaustion		1	1						1
LOCAL INJURIES	11	227	170	52			16	321	559
Strain of muscles		4	2	2				1	5
Rupture of muscles		1	1						1
Abrasion of skin								1	1
Contusion of scalp		1	1					4	5
Scalp wound:									
Bone not exposed		13	11	1			1	6	19
Bone exposed								1	1
Contusion of skull								1	1
Fracture of the vault of the skull	1			1					1
Fracture of the base of the skull		2	1	1				2	4
Concussion of brain		1	1						1
Penetrating wound of brain		1		1					1
Contusion of face		1		1				1	2
Wound of face and mouth		8	7	1				4	12
Fracture of facial bones	1	1		2					2
Contusion of the eye		1		1				2	3
Foreign body in cornea or conjunctiva		1	1					4	5
Wound of eyelid								1	1
Wound of pinna		1		1				1	2
Contusion of the chest		7	6	1				6	13
Fracture of the ribs		13	9	2			2	5	18
Contusion of back		15	13	2				7	22
Sprain of back	1	3	2	2				3	7
Concussion of cord	1	3	2	2					4
Contusion of abdomen		1	1						1
Wound of parietes of abdomen								1	1
Wound of the urethra, perineum, scrotum, and penis		1	1					1	2
Rupture of urethra		2	1	1				1	3
Contusion of testicle								1	1
Contusion of upper extremities	1	18	8	9			2	68	87
Sprain of the shoulder								5	5
Sprain of the elbow		2	2					5	7
Sprain of the wrist		2	2					7	9
Wound of the upper extremities		22	19	1			2	4	26
Wound of joint, upper extremities								81	81
Fracture of the clavicle		1	1					1	2
Fracture of the humerus	1	5	4	2				2	8
Fracture of the radius								1	1
Fracture of the ulna		1		1				1	2
Fracture of both bones of forearm	1	1	2						2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued									
Fracture of carpus, metacarpus, and phalanges		3	3					5	8
Dislocation of the humerus		4	2	2				1	5
Dislocation of the carpus								1	1
Contusion of the lower extremities	2	20	19	2			1	35	57
Sprain of the knee		2	1	1				5	7
Sprain of the ankle		21	19	2				18	39
Sprain of the foot								5	5
Wound of the lower extremities		23	17	4			2	21	44
Fracture of femur		3	1				2		3
Fracture of patella		4		1			3		4
Fracture of leg, both bones	1	5	4	1			1		6
Fracture of tibia alone		4	3	1				1	5
Fracture of fibula alone	1	2	2	1					3
Fracture of metatarsus		2	1	1					2
Dislocation of the patella		1		1					1

SOUTH ATLANTIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**124**	**1,725**	**1,053**	**603**	**29**	**66**	**98**	**6,949**	**8,798**
General Diseases	**46**	**859**	**481**	**350**	**17**	**22**	**35**	**3,072**	**3,977**
Smallpox								1	1
Chicken pox		1	1					5	6
Measles		2	2						2
Dengue		7	1	6					7
Influenza		65	48	15		1	1	189	254
Mumps								6	6
Diphtheria		3	2	1					3
Simple continued fever		5	3	1			1	1	6
Enteric fever	4	17	12	2		7			21
Sporadic cholera	1		1					8	9
Dysentery	3	26	18	11				76	105
Malarial intermittent fever	5	193	185	5	1	1	6	821	1,019
Malarial remittent fever	1	98	63	31	3	1	1	56	155
Malarial cachexia		11	7	2			2	49	60
Erysipelas:									
Simple		6	3	3				7	13
Phlegmonous		1		1					1
Syphilis:									
Primary		30	12	17			1	112	142
Secondary	15	133	4	134	3		7	407	555
Gonorrhœa	4	36	27	10	1		2	518	558
Animal parasites		1	1					6	7
Alcoholism	1	7	7	1				13	21
Delirium tremens								1	1
Debility		6	4	2				67	73
Rheumatic fever		34	21	13				12	46
Rheumatism	3	117	53	60	1	1	5	590	710
Gout		1	1						1
Osteo-arthritis								1	1
Cysts		1	1						1
Nonmalignant new growth		1	1						1
Malignant new growth	1	1	1	1				32	34
Tubercle	7	53		33	8	10	9	62	122
Scrofula	1			1				2	3
Anæmia		3	2			1		28	31
Diabetes mellitus								2	2
Local Diseases	**73**	**645**	**398**	**213**	**11**	**42**	**54**	**3,422**	**4,140**
DISEASES OF THE NERVOUS SYSTEM	13	47	27	19	1	5	8	324	384
Congestion, cerebral								1	1
Inflammation:									
Of brain and its membranes		1				1			1
Of cerebral membranes		2				2			2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Myelitis	2			1			1		2
Neuritis	1	8	5	4				7	16
Sclerosis								1	1
Locomotor ataxy		1		1				1	2
Apoplexy		1				1			1
Paralysis	1						1		1
Hemiplegia	3	3		2		1	3	2	8
Paraplegia	2	1	1				2		3
Local paralysis		3		3				15	18
Toxic paralysis		1		1					1
Anæsthesia								2	2
Spasm of muscle								10	10
Wry-neck								3	3
Paralysis agitans								1	1
Aphasia		1		1				2	3
Hyperæsthesia		1	1					2	3
Neuralgia		8	7	1				166	174
Facial		6	5	1				43	49
Sciatica	3	7	7	3				16	26
Vertigo	1						1	8	9
Megrim		1	1					18	19
Epilepsy		2		1	1			26	28
MENTAL DISEASES	21	8	2	3		3	21	4	33
Hypochondriasis								1	1
Insanity		1		1					1
Mania	10	3	2			1	10		13
Melancholia	8	1					9		9
Dementia	2	3		2		2	1	3	8
General paralysis of the insane	1						1		1
DISEASES OF THE EYE	1	14	8	6			1	70	85
Œdema of the conjunctiva								1	1
Conjunctivitis		1		1				36	37
Pterygium		3	2	1				2	5
Ulcer of cornea		2	1	1				4	6
Iritis		5	2	3				10	15
Glaucoma								1	1
Inflammation of optic nerve								1	1
Retinitis								1	1
Cataract	1						1		1
Night-blindness								2	2
Day-blindness		1	1					1	2
Diplopia								1	1
Squint		1	1						1
Dacrocystitis								1	1
Stricture of nasal duct								1	1
Hæmatoma								3	3
Blepharitis								1	1
Stye								3	3
Abscess of eyelid		1	1						1
Chalazion								1	1
DISEASES OF THE EAR		3	2	1				31	34
Inflammation of the external meatus, acute								3	3
Abscess of the external meatus								5	5
Accumulation of wax								3	3
Inflammation of the middle ear		3	2	1				17	20
Obstruction of Eustachian tube								1	1
Deafness								2	2
DISEASES OF THE NOSE		2	1	1				85	87
Epistaxis								3	3
Nasal catarrh		2	1	1				80	82
Abscess								1	1
Ozæna								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM	5	29	2	15	2	13	2	59	93
Pericarditis		3	1		1	1			3
Endocarditis		1		1					1
Valvular disease:									
Aortic		5		2		3		3	8
Mitral	2	14		9		5	2	20	36
Hypertrophy of heart								2	2
Inflammation of heart								1	1
Degeneration of heart, fatty								1	1
Angina pectoris		1		1				1	2
Palpitation and irregular action of heart								17	17
Degeneration of arteries	1					1		2	3
Aneurism of arteries	2	3		1	1	3		6	11
Obstruction of arteries								2	2
Phlebitis		1	1						1
Varix		1		1				4	5
DISEASES OF THE RESPIRATORY SYSTEM	5	98	59	30	2	11	1	556	659
Laryngitis:									
Acute		1		1				20	21
Chronic								4	4
Bronchitis:									
Acute	1	35	26	9		1		444	480
Chronic		6	2	4				40	46
Catarrhal	1	1	2					8	10
Spasmodic asthma		4		4				16	20
Passive congestion of lung		1				1			1
Hæmorrhage of lung		2	1	1				4	6
Œdema of lung		2				2			2
Pneumonia	1	30	21	3		6	1		31
Pneumonic phthisis:									
Acute								4	4
Chronic	1	4		3	1	1		1	6
Emphysema		1		1					1
Hydrothorax		1		1				1	2
Pleurisy, acute	1	10	7	3	1			14	25
DISEASES OF THE DIGESTIVE SYSTEM	5	116	73	36	2	5	5	1,055	1,176
Ulcer of the lips								1	1
Stomatitis								8	8
Noma								1	1
Caries of dentine and cementum								39	39
Necrosis of dentine and cementum								1	1
Abscess of dental periosteum								2	2
Inflammation of gums and alveoli								3	3
Ulceration of gums and alveoli		1	1					1	2
Caries of the alveoli		2	1				1	3	5
Toothache								26	26
Suppuration of the alveoli								2	2
Inflammation of the tongue								1	1
Ulcer of the tongue		1	1					3	4
Hypertrophy of tonsils								1	1
Elongated uvula								7	7
Sore throat								42	42
Quinsy		5	5					7	12
Follicular tonsilitis		11	8	3				38	49
Ulceration of fauces								1	1
Sloughing sore throat								1	1
Inflammation of salivary glands								1	1
Follicular inflammation of the pharynx		1		1				60	61
Hæmorrhage of the stomach		10	2	7		1			10
Inflammation of the stomach								40	40
Dyspepsia		2	1	1				143	145
Gastrodynia		1	1					3	4
Inflammation of the intestines:									
Catarrhal	1	13	14					41	55
Ulcerative	1	6	4	3				10	17
Appendicitis		2		1		1			2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Abscess in the subperitoneal tissue	......	1	......	......	......	1	......	......	1
Obstruction of the intestines	......	1	1	......	......	......	......	......	1
Hernia	......	5	1	1	1	1	1	97	102
Diarrhœa	......	21	15	6	......	......	......	167	188
Constipation	......	2	2	......	......	......	......	144	146
Colic	......	3	3	......	......	......	......	30	33
Hæmorrhage of the rectum	......	2	1	1	......	......	......	......	2
Abscess of the rectum	......	2	1	1	......	......	......	1	3
Piles:									
Internal	1	6	4	3	......	......	......	28	35
External	......	2	2	......	......	......	......	21	23
Fistula in ano	......	1	......	......	......	......	1	2	3
Pruritus ani	......	......	......	......	......	......	......	2	2
Hypertrophy of the liver	......	......	......	......	......	......	......	8	8
Congestion of the liver	......	1	......	1	......	......	......	43	44
Hepatitis	1	1	......	1	1	......	......	3	5
Cirrhosis of liver	1	4	......	4	......	......	1	2	7
Abscess of liver	......	1	......	......	......	1	......	......	1
Jaundice	......	5	3	1	......	......	1	8	13
Inflammation of hepatic ducts and gall bladder	......	......	......	......	......	......	......	1	1
Obstruction of hepatic ducts and gall bladder	......	......	......	......	......	......	......	1	1
Gallstones	......	1	1	......	......	......	......	5	6
Biliary colic	......	1	1	......	......	......	......	3	4
Ascites	......	1	......	1	......	......	......	3	4
DISEASES OF THE LYMPHATIC SYSTEM	1	61	44	13	......	......	5	90	152
Hypertrophy of the spleen	......	......	......	......	......	......	......	4	4
Congestion of the spleen	......	1	1	......	......	......	......	......	1
Splenitis	......	1	1	......	......	......	......	......	1
Hypertrophy of lymph glands	......	......	......	......	......	......	......	2	2
Inflammation of lymph vessels	......	......	......	......	......	......	......	1	1
Inflammation of lymph glands	1	25	19	6	......	......	1	61	87
Suppuration of lymph glands	......	34	23	7	......	......	4	22	56
DISEASES OF THE URINARY SYSTEM	2	36	9	22	2	3	2	75	113
Acute nephritis	1	5	2	4	......	......	......	6	12
Bright's disease	1	12	......	8	1	3	1	15	28
Calculus in ureter	......	2	2	......	......	......	......	......	2
Hæmaturia	......	......	......	......	......	......	......	5	5
Lithuria	......	......	......	......	......	......	......	5	5
Inflammation of bladder:									
Acute	......	14	3	10	1	......	......	23	37
Subacute	......	2	1	......	......	......	1	13	15
Chronic	......	......	......	......	......	......	......	1	1
Irritability of bladder	......	......	......	......	......	......	......	4	4
Retention of urine	......	1	1	......	......	......	......	1	2
Incontinence of urine	......	......	......	......	......	......	......	2	2
DISEASES OF THE GENERATIVE SYSTEM	7	97	65	33	2	1	3	350	454
Urethritis	......	......	......	......	......	......	......	19	19
Gleet	......	......	......	......	......	......	......	15	15
Stricture of urethra:									
Organic	3	26	16	12	1	......	......	64	93
Spasmodic	......	1	1	......	......	......	......	1	2
Hypertrophy of prostate gland	......	......	......	......	......	......	......	7	7
Acute inflammation of prostate gland	......	1	1	......	......	......	......	7	8
Chronic inflammation of prostate gland	......	......	......	......	......	......	......	2	2
Abscess of prostate gland	......	......	......	......	......	......	......	1	1
Œdema of the penis	......	......	......	......	......	......	......	1	1
Inflammation of the penis	......	......	......	......	......	......	......	1	1
Inflammation of glans penis	......	1	1	......	......	......	......	7	8
Ulcer of penis	2	34	19	13	1	1	2	144	180
Phimosis	1	4	5	......	......	......	......	1	6
Priapism	......	1	1	......	......	......	......	2	3
Hydrocele of spermatic cord	......	......	......	......	......	......	......	1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Varicocele		2	1	1				12	14
Hydrocele of tunica vaginalis								12	12
Orchitis:									
Acute	1	13	9	4			1	25	39
Chronic		3		3				3	6
Epididymitis		11	11					10	21
Spermatorrhœa								8	8
Impotence								5	5
Ulcer of the vulva								1	1
Amenorrhœa								1	1
DISEASES OF THE ORGANS OF LOCOMOTION	3	23	12	9		1	4	55	81
Periostitis		1	1					4	5
Chronic abscess of bones		1		1				3	4
Caries								1	1
Necrosis	2	1	1			1	1	3	6
Synovitis:									
Acute		14	8	5			1	25	39
Chronic		2		2				2	4
Abscess of joints								1	1
Ankylosis	1						1	3	4
Loose body in joint								1	1
Angular curvature of spine		2		1			1		2
Inflammation of muscles								5	5
Inflammation of tendons		1	1					1	2
Contraction of tendons and fasciæ		1	1					1	2
Inflamed bursa								3	3
Bunion								2	2
DISEASES OF THE CONNECTIVE TISSUE	4	25	22	7				86	115
Œdema		1	1					2	3
Inflammation	2	6	8					11	19
Abscess	2	18	13	7				62	82
Undue formation of fat								11	11
DISEASES OF THE SKIN	6	84	70	18			2	512	602
Erythema								13	13
Urticaria								8	8
Eczema		4	3	1				105	109
Ecthyma								7	7
Prurigo								7	7
Lichen								2	2
Psoriasis		1	1					2	3
Herpes								21	21
Zona		4	3	1				5	9
Pemphigus								2	2
Acne								6	6
Gutta rosea								1	1
Sycosis								3	3
Alopecia								1	1
Chilblain								2	2
Frostbite	1	25	22	3			1	28	54
Ulcer	3	23	18	7			1	124	150
Fissures								3	3
Boil	1	15	14	2				126	142
Carbuncle		5	2	3				5	10
Whitlow	1	4	4	1				25	30
Onychia								7	7
Corn								2	2
Cheloid								2	2
Wen		2	2					2	4
Pruritus								2	2
Hyperidrosis								1	1
Ainhum		1	1						1
PARASITIC DISEASE OF THE SKIN		2	2					67	69
Ringworm								6	6
Tinea versicolor								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
PARASITIC DISEASE OF THE SKIN—Cont'd.									
Itch		2	2					53	55
Phthiriasis								6	6
Unclassified								1	1
Poisons								**3**	**3**
Lead colic								1	1
Vegetable poisons								2	2
Injuries	**5**	**221**	**174**	**40**	**1**	**2**	**9**	**455**	**681**
GENERAL INJURIES		36	31	4			1	34	70
Burns and scalds		10	8	2				26	36
Effects of cold								6	6
Heat stroke		3	3					2	5
Multiple injury		4	2	1			1		4
Privation		14	14						14
Exhaustion		5	4	1					5
LOCAL INJURIES	5	185	143	36	1	2	8	421	611
Wound of nerve		1	1						1
Strain of muscles		3	3					28	31
Abrasion of skin								7	7
Foreign body in subcutaneous tissue								3	3
Contusion of scalp		1	1					5	6
Scalp wound:									
Bone not exposed		8	6				2	14	22
Bone exposed	1	4	3	2				4	9
Contusion of skull								1	1
Fracture of the vault of the skull		3	1	1		1			3
Concussion of brain		2	2						2
Contusion of face								1	1
Wound of face and mouth		8	7	1				11	19
Contusion of the eye								3	3
Foreign body in cornea or conjunctiva								12	12
Contusion of pinna								1	1
Wound of neck								1	1
Foreign body in the pharynx								1	2
Foreign body in the œsophagus								2	1
Contusion of the chest		7	4	3				12	19
Fracture of the ribs	1	4	3	2				2	7
Wound of parietes of chest								1	1
Contusion of back		4	2	1			1	8	12
Sprain of back		3	3					16	19
Concussion of cord								1	1
Contusion of abdomen		1		1				3	4
Contusion of the urethra, perineum, scrotum, and penis								1	1
Foreign body in the rectum								1	1
Contusion of testicle								3	3
Contusion of upper extremities		8	8					26	34
Sprain of the shoulder		1	1					6	7
Sprain of the elbow								1	1
Sprain of the wrist		6	5	1				13	19
Sprain of the fingers								3	3
Wound of the upper extremities		54	44	7	1	1	1	146	200
Fracture of the clavicle		1	1					2	3
Fracture of the scapula		1		1				1	2
Fracture of the humerus	1	1	1				1		2
Fracture of the radius	1	4	3	2					5
Fracture of both bones of forearm								2	2
Fracture of carpus, metacarpus, and phalanges		2	1	1					2
Dislocation of the clavicle		2	2					1	3
Dislocation of the humerus		3	3						3
Dislocation of the radius		1	1						1
Dislocation of the carpus								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Contusion of the lower extremities		11	8	3				34	45
Sprain of the hip		1	1						1
Sprain of the knee		6	5	1				5	11
Sprain of the ankle		6	2	4				9	15
Wound of the lower extremities	1	18	15	3			1	1	47
Fracture of leg, both bones		4	3	1					5
Fracture of tibia alone		1	1						1
Fracture of fibula alone		1	1						1
Fracture of phalanges of toes		1	1						1
Dislocation of the femur at the hip		2		1			1	1	2
Dislocation of the foot at the ankle		1					1		1

THE GULF.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**72**	**1,303**	**792**	**430**	**42**	**41**	**70**	**4,501**	**5,876**
General Diseases	**28**	**566**	**314**	**212**	**18**	**15**	**35**	**1,900**	**2,494**
Smallpox		2			2			22	24
Cowpox		1	1					173	174
Chicken pox								1	1
Measles		12	12					1	13
Dengue		1	1					11	12
Influenza		10	8	2				31	41
Mumps		3	3						3
Simple continued fever		4	3		1			1	5
Enteric fever		4	3			1			4
Typho-malarial fever		2	2						2
Sporadic cholera	1		1						1
Dysentery	1	23	17	1	1	1	4	43	67
Malarial intermittent fever	2	112	100			1	13	217	331
Malarial remittent fever	6	52	53	2	1		2	68	126
Malarial cachexia		20	14	3	1	1	1	80	100
Erysipelas, simple		2	2						2
Syphilis:									
Primary	4	17	2	19				40	61
Secondary	8	99	2	102	1		2	368	475
Gonorrhœa		28	22	5	1			364	392
Animal parasites		4	3	1					4
Effects of excessive venery								2	2
Alcoholism		9	7	2				12	21
Debility		7	5	1	1			40	47
Rheumatic fever	1	7	3	4			1	5	13
Rheumatism	2	96	49	43	2		4	360	458
Cysts								1	1
Nonmalignant new growth		2		2				18	20
Malignant new growth	1	1	1		1			3	5
Tubercle	2	43		22	5	11	7	32	77
Scrofula		4		2	1		1		4
Leprosy		1		1					1
Anæmia								7	7
Local Diseases	**32**	**573**	**349**	**182**	**20**	**26**	**28**	**2,234**	**2,839**
DISEASES OF THE NERVOUS SYSTEM	2	22	10	9	2		3	95	119
Hæmorrhage, spinal		1					1		1
Spinal meningitis	1						1	1	2
Neuritis								3	3
Sclerosis								2	2
Locomotor ataxy		3		2	1				3
Paralysis								1	1
Hemiplegia		5		3	1		1		5
Local paralysis		1		1				7	8
Glosso-labio-pharyngeal paralysis								1	1
Spasm of muscle		1	1					2	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE NERVOUS SYSTEM—Con'd.									
Hyperæsthesia								2	2
Neuralgia		6	5	1				53	59
Facial	1	1	1	1				10	12
Sciatica		2	2					1	3
Vertigo		1	1					2	3
Megrim								6	6
Epilepsy		1		1				4	5
MENTAL DISEASES	2	2	1		1		2	1	5
Hypochondriasis								1	1
Insanity	1						1		1
Mania	1						1		1
Melancholia		1	1						1
General paralysis of the insane		1							1
DISEASES OF THE EYE	1	8	5	2	2			63	72
Conjunctivitis		1	1					35	36
Pterygium		2	1	1				1	3
Keratitis		1	1						1
Opacity of cornea		1			1			1	2
Iritis		2	2					3	5
Paralytic mydriasis								4	4
Retinitis								4	4
Cataract		1			1			5	6
Ametropia								2	2
Day blindness								1	1
Squint								1	1
Stricture of nasal duct								1	1
Hæmatoma								1	1
Blepharitis	1			1				2	3
Stye								1	1
Chalazion								1	1
DISEASES OF THE EAR		4	3	1				30	34
Inflammation of the external meatus		1	1						1
Acute								2	2
Abscess of the external meatus								2	2
Accumulation of wax								7	7
Inflammation of the middle ear		3	2	1				17	20
Obstruction of Eustachian tube								2	2
DISEASES OF THE NOSE		1	1					33	34
Nasal catarrh		1	1					33	34
DISEASES OF THE CIRCULATORY SYSTEM	2	34	1	25	4	3	3	47	83
Valvular disease:									
Aortic		2		2				6	8
Mitral	2	20		17		2	3	26	48
Hypertrophy of heart								1	1
Degeneration of heart, fatty		1		1					1
Dilatation of heart		1		1					1
Palpitation and irregular action of heart		2		2				9	11
Aneurism of arteries		4			4			4	8
Obstruction of arteries		1				1			1
Varix		3	1	2					3
DISEASES OF THE RESPIRATORY SYSTEM	3	105	65	24	4	11	4	406	514
Laryngitis:									
Acute		1	1					4	5
Catarrhal		1		1					1
Bronchitis:									
Acute	1	47	34	9	3	2		319	367
Chronic		11	3	5		1	2	55	66
Catarrhal								2	2
Spasmodic asthma	1	3	2	1		1		6	10
Hæmorrhage of lung		2		1	1				2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Pneumonia		19	13	1		4	1	1	20
Pneumonic phthisis, chronic								1	1
Emphysema		2		2					2
Pleurisy:									
Acute		18	12	2		3	1	6	24
Chronic	1	1		2				11	13
Adhesions of pleura								1	1
DISEASES OF THE DIGESTIVE SYSTEM	2	112	77	20	4	8	5	749	863
Ulcer of the lips								1	1
Fissure of the lips								1	1
Stomatitis								5	5
Ulcerative stomatitis								1	1
Cyst of the mouth								1	1
Caries of dentine and cementum								28	28
Necrosis of dentine and cementum								2	2
Inflammation of dental periosteum		2	2						2
Abscess of dental periosteum		1			1			9	10
Ulceration of gums and alveoli								2	2
Caries of the alveoli		2	2						2
Toothache								14	14
Inflammation of the tongue								4	4
Hypertrophy of tonsils								2	2
Sore throat		7	7					15	22
Quinsy		1	1					3	4
Follicular tonsilitis								24	24
Ulceration of fauces								1	1
Inflammation of salivary glands								1	1
Follicular inflammation of the pharynx								8	8
Inflammation of the stomach		7	6	1				31	38
Ulceration of the stomach		4	2		1		1	1	5
Dyspepsia		4	3	1				96	100
Inflammation of the intestines:									
Catarrhal		4	2	1		1		27	31
Ulcerative		2	1			1		1	3
Obstruction of the intestines		1	1					1	2
Hernia		6	2	2	1	1		94	100
Fistula of intestines		1				1			1
Diarrhœa	2	36	30	7		1		130	168
Constipation		1	1					101	102
Colic		5	4	1				30	35
Abscess of the rectum		2	1				1	4	6
Piles:									
Internal		5	3	2				24	29
External		2		1			1	19	21
Fistula in ano		2	1				1	2	4
Pruritus ani								2	2
Congestion of the liver		3	2	1				33	36
Perihepatitis		1	1						1
Cirrhosis of liver		2		1		1		1	3
Abscess of liver		1				1			1
Jaundice		5	3	1	1			6	11
Inflammation of hepatic ducts and gall bladder		2	1	1				22	24
Biliary colic		1					1	2	3
Peritonitis		2	1			1			2
DISEASES OF THE LYMPHATIC SYSTEM	5	37	25	16		1		86	128
Hypertrophy of the spleen								1	1
Induration and enlargement of spleen from ague		1				1		2	3
Congestion of the spleen								1	1
Inflammation of lymph vessels								1	1
Inflammation of lymph glands	4	22	16	10				58	84
Suppuration of lymph glands	1	14	9	6				23	38
DISEASES OF THE URINARY SYSTEM	1	9	1	5	1	1	2	34	44
Acute nephritis		2	1			1		1	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE URINARY SYSTEM—Continued.									
Bright's disease	1	3		2	1		1	1	5
Nephralgia		1					1		1
Hæmaturia								3	3
Inflammation of bladder:									
Acute								5	5
Subacute								3	3
Chronic		1		1				15	16
Irritability of bladder		2		2				3	5
Retention of urine								2	2
Incontinence of urine								1	1
DISEASES OF THE GENERATIVE SYSTEM	10	128	83	48	1		6	269	407
Urethritis								22	22
Gleet								2	2
Stricture of urethra, organic	2	18	2	17			1	30	50
Urinary fistula		1		1					1
Hypertrophy of prostrate gland								2	2
Inflammation of the penis								7	7
Inflammation of glans penis								2	2
Ulcer of penis	6	85	63	25			3	161	252
Phimosis		2	2					2	4
Paraphimosis								2	2
Pruritis of the scrotum								2	2
Varicocele								10	10
Hydrocele of tunica vaginalis		5	1	4				1	6
Orchitis:									
Acute	1	10	8	1	1		1	9	20
Chronic								6	6
Epididymitis	1	7	7				1	2	10
Spermatorrhœa								1	1
Impotence								5	5
Iliac abscess								1	1
DISEASES OF THE ORGANS OF LOCOMOTION	1	8	1	7		1		8	17
Ostitis		1		1					1
Periostitis		1		1					1
Caries		1		1					1
Necrosis		2		2				3	5
Dropsy ot joints		1		1				2	3
Synovitis, acute		1	1					1	2
Caries and necrosis of spine	1					1			1
Inflamed bursa		1		1				1	2
Ganglion								1	1
DISEASES OF THE CONNECTIVE TISSUE	2	47	43	5		1		50	99
Œdema								9	9
Inflammation		11	8	2		1		18	29
Abscess	2	36	35	3				23	61
DISEASES OF THE SKIN	1	54	31	20	1		3	362	417
Erythema								2	2
Urticaria								4	4
Eczema		2		1			1	57	59
Intertrigo								1	1
Impetigo								4	4
Ecthyma		1	1						1
Psoriasis		1	1					1	2
Miliaria		1					1		1
Herpes		1	1					6	7
Zona								1	1
Pemphigus		1	1						1
Acne								8	8
Chilblain								16	16
Frostbite		12	9	3				123	135
Ulcer		28	13	13	1		1	84	112
Fissures								1	1
Boil		2	1	1				34	36
Carbuncle								6	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Whitlow	1	3	3	1				7	11
Onychia		1	1					2	3
Wen		1		1				4	5
Pruritus								1	1
PARASITIC DISEASES OF THE SKIN								32	32
Ringworm								18	18
Itch								10	10
Phthiriasis								3	3
Unclassified								1	1
Poisons		**1**	**1**					**1**	**2**
Lead colic		1	1						1
Vegetable poisons								1	1
POISONED WOUNDS		2	2					1	3
Venomous animals		2	2					1	3
Injuries	**12**	**164**	**129**	**36**	**4**		**7**	**367**	**543**
GENERAL INJURIES		11	7	2	1		1	17	28
Burns and scalds		7	4	2	1			13	20
Effects of cold								3	3
Heat stroke		2	1				1	1	3
Multiple injury		2	2						2
LOCAL INJURIES	12	153	122	34	3		6	350	515
Wound of arteries								1	1
Strain of muscles	1	3	3	1				6	10
Abrasion of skin								11	11
Contusion of scalp								4	4
Scalp wound:									
Bone not exposed		3	1	2				10	13
Bone exposed		3	2	1				7	10
Fracture of the vault of the skull		2	2						2
Concussion of brain		1	1						1
Contusion of face		2	2					2	0
Wound of face and mouth	1	4	3	2				5	14
Fracture of facial bones								1	1
Contusion of the eye		3	1	1			1	1	4
Foreign body in cornea or conjunctiva		1	1					8	9
Wound of conjunctiva								1	1
Contusion of pinna								1	1
Foreign body in external meatus								2	2
Contusion of soft parts of neck								1	1
Contusion of the chest		4	4					13	17
Fracture of the ribs	1	3	4					7	11
Fracture of the sternum								1	1
Wound of parietes of chest								1	1
Contusion of back		5	4	1				19	24
Sprain of back		11	8	1			2	30	41
Wound of back								2	2
Contusion of abdomen		1	1					2	3
Wound of parietes of abdomen								4	4
Wound of penis		1	1					2	3
Contusion of testicle		1	1					3	4
Contusion of upper extremities		3	3					23	26
Sprain of the shoulder		4	2	1	1			7	11
Sprain of the elbow								1	1
Sprain of the wrist		5	4	1				7	12
Sprain of the fingers								5	5
Wound of the upper extremities	1	20	12	9				60	81
Wound of joint, upper extremities		1	1						1
Fracture of the clavicle	1	2	3					3	6
Fracture of the humerus	2	2	3	1					4
Fracture of the radius		1	1					2	3
Fracture of carpus, metacarpus, and phalanges								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
			Discharged.						
	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Dislocation of the humerus		3	3						3
Contusion of the lower extremities	3	20	18	2			3	49	72
Sprain of the hip		1		1				1	2
Sprain of the knee		5	5					6	11
Sprain of the ankle		13	8	4	1			13	26
Sprain of the foot								1	1
Wound of the lower extremities		18	12	6				22	40
Fracture of femur	1		1						1
Fracture of patella		2	1		1				2
Fracture of leg, both bones	1	2	3					3	6
Fracture of tibia alone		2	2						2
Dislocation of the knee		1	1						1
Dislocation of the metatarsus and phalanges								1	1

THE OHIO.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**50**	**1,003**	**653**	**270**	**17**	**34**	**79**	**3,239**	**4,292**
General Diseases	**21**	**455**	**267**	**147**	**7**	**17**	**38**	**1,560**	**2,036**
Smallpox		2	1			1			2
Cowpox		1	1					155	156
Influenza		56	45	9		1	1	151	207
Enteric fever	3	16	11			3	5		19
Typho-malarial fever		2	2						2
Dysentery	2	13	13	1		1		22	37
Malarial intermittent fever		62	48	6	2	1	5	232	294
Malarial remittent fever	1	24	22				3	10	35
Malarial cachexia		1	1					8	9
Erysipelas, simple		4	3				1		4
Syphilis:									
Primary	1	14	7	6			2	15	30
Secondary	4	68	2	63	5		2	298	370
Gonorrhœa	1	21	11	10			1	254	276
Alcoholism	1	9	9	1				2	12
Debility	1	1		2				56	58
Old age	1	1					2		2
Rheumatic fever		9	8				1		9
Rheumatism	4	112	79	27		1	9	307	423
Nonmalignant new growth		2	2					4	6
Tubercle	2	36	2	21		9	6	44	82
Anæmia								2	2
Diabetes mellitus		1		1					2
Local Diseases	**22**	**411**	**277**	**98**	**9**	**15**	**34**	**1,525**	**1,958**
DISEASES OF THE NERVOUS SYSTEM	3	17	9	3	2		6	87	107
Myelitis								1	1
Neuritis		1	1					3	4
Sclerosis								12	12
Locomotor ataxy	2	1			1		2		3
Hemiplegia		1					1		1
Local paralysis		4	2	1			1	7	11
Spasm of muscle								1	1
Hyperæsthesia								1	1
Neuralgia		2	1				1	52	54
Facial		2	2					1	3
Sciatica		3	2	1					3
Megrim								6	6
Tetanus		1	1						1
Epilepsy	1	2		1	1		1		3
Hysteria								3	3
MENTAL DISEASES								4	4
Hypochondriasis								4	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE EYE	1	11	6	5	1	....	......	25	37
Hyperæmia of the conjunctiva	......	......	......	......	......	....	......	1	1
Conjunctivitis	......	5	3	2	......	....	......	18	23
Pterygium	......	2	......	2	......	....	......	......	2
Keratitis	......	1	1	......	......	....	......	......	1
Iritis	1	2	2	1	......	....	......	......	3
Atrophy of optic disk or papilla	......	1	......	......	1	....	......	......	1
Cataract	......	......	......	......	......	....	......	2	2
Amblyopia	......	......	......	......	......	....	......	1	1
Sty	......	......	......	......	......	....	......	2	2
Abscess of eyelid	......	......	......	......	......	....	......	1	1
DISEASES OF THE EAR	......	1	......	......	......	....	1	10	11
Abscess of the external meatus	......	......	......	......	......	....	......	1	1
Accumulation of wax	......	......	......	......	......	....	......	4	4
Inflammation of the middle ear	......	1	......	......	......	....	1	4	5
Ulceration of membrana tympani	......	......	......	......	......	....	......	1	1
DISEASES OF THE NOSE	......	1	......	1	......	....	......	47	48
Epistaxis	......	......	......	......	......	....	......	1	1
Inflammation	......	......	......	......	......	....	......	5	5
Nasal catarrh	......	1	......	1	......	....	......	41	42
DISEASES OF THE CIRCULATORY SYSTEM	1	7	......	4	1	3	......	36	44
Valvular disease:									
Aortic	......	2	......	1	......	1	......	5	7
Mitral	1	3	......	2	1	1	......	22	26
Palpitation and irregular action of heart	......	......	......	......	......	....	......	4	4
Aneurism of arteries	......	2	......	1	......	1	......	2	4
Varix	......	......	......	......	......	....	......	3	3
DISEASES OF THE RESPIRATORY SYSTEM	5	82	55	22	1	8	1	319	406
Œdema glottidis	......	......	......	......	......	....	......	1	1
Laryngitis									
Acute	......	......	......	......	......	....	......	4	4
Chronic	......	1	......	1	......	....	......	......	1
Bronchitis:									
Acute	......	26	21	3	1	....	1	240	266
Chronic	1	5	......	6	......	....	......	51	57
Catarrhal	......	5	4	1	......	....	......	1	6
Spasmodic asthma	1	5	......	6	......	....	......	11	17
Pneumonia	1	37	27	3	......	8	......	1	39
Emphysema	1	......	......	1	......	....	......	......	1
Pleurisy:									
Acute	1	2	3	......	......	....	......	10	13
Chronic	......	1	......	1	......	....	......	......	1
DISEASES OF THE DIGESTIVE SYSTEM	3	124	102	13	1	2	9	505	632
Stomatitis	......	......	......	......	......	....	......	2	2
Ulcerative stomatitis	......	......	......	......	......	....	......	1	1
Caries of dentine and cementum	......	1	1	......	......	....	......	8	9
Inflammation of dental periosteum	......	......	......	......	......	....	......	1	1
Abcess of dental periosteum	......	......	......	......	......	....	......	2	2
Inflammation of gums and alveoli	......	......	......	......	......	....	......	3	3
Ulceration of gums and alveoli	......	......	......	......	......	....	......	1	1
Ulcer of the tongue	......	......	......	......	......	....	......	3	3
Elongated uvula	......	......	......	......	......	....	......	1	1
Sore throat	......	......	......	......	......	....	......	15	15
Quinsy	......	2	2	......	......	....	......	1	3
Follicular tonsilitis	......	11	10	1	......	....	......	28	39
Follicular inflammation of the pharynx	......	......	......	......	......	....	......	12	12
Ulceration of pharynx	......	2	2	......	......	....	......	......	2
Inflammation of the stomach	......	12	9	1	......	1	1	22	34
Ulceration of the stomach	......	1	......	1	......	....	......	2	3
Dyspepsia	......	2	2	......	......	....	......	98	100
Gastrodynia	......	......	......	......	......	....	......	2	2
Imflammation of the intestines:									
Catarrhal	......	29	24	......	......	1	4	8	37
Ulcerative	......	1	1	......	......	....	......	......	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Hernia	......	2	2	......	......	....	......	48	50
Diarrhœa	1	30	30	......	......	...	1	85	116
Constipation	......	4	4	......	......	....	......	88	92
Colic	......	......	......	......	......	....	......	3	3
Abscess of the rectum	......	2	2	......	......	....	......	1	3
Piles:									
Internal	1	4	2	2	......	....	1	5	10
External	......	4	2	1	1	....	......	23	27
Fistula in ano	1	5	3	2	......	....	1	1	7
Fissure of the anus	......	1	1	......	......	....	......	1	2
Puritus ani	......	......	......	......	......	....	......	2	2
Congestion of the liver	......	2	1	......	......	....	1	5	7
Hepatitis	......	5	3	2	......	....	......	26	31
Cirrhosis of liver	......	2	......	2	......	....	......	......	2
Jaundice	......	1	1	......	......	....	......	4	5
Inflammation of hepatic ducts and gall bladder	......	......	......	......	......	....	......	2	2
Biliary colic	......	1	......	1	......	....	......	1	2
DISEASES OF THE LYMPHATIC SYSTEM	1	19	14	5	......	....	1	23	43
Hypertrophy of lymph glands	......	......	......	......	......	....	......	2	2
Inflammation of lymph glands	1	11	9	2	......	....	1	12	24
Suppuration of lymph glands	......	8	5	3	......	....	......	9	17
DISEASES OF THE URINARY SYSTEM	......	21	8	9	......	2	2	67	88
Congestion of kidney	......	......	......	......	......	....	......	3	3
Acute nephritis	......	7	2	5	......	....	......	2	9
Bright's disease	......	6	......	3	......	2	1	22	28
Nephralgia	......	......	......	......	......	....	......	1	1
Diabetes insipidus	......	......	......	......	......	....	......	6	6
Inflammation of bladder:									
Acute	......	7	6	......	......	....	1	26	33
Chronic	......	1	......	1	......	....	......	......	1
Irritability of bladder	......	......	......	......	......	....	......	4	4
Incontinence of urine	......	......	......	......	......	....	......	3	3
DISEASES OF THE GENERATIVE SYSTEM	4	55	36	16	1	....	6	232	291
Urethritis	......	......	......	......	......	....	......	2	2
Gleet	......	......	......	......	......	....	......	9	9
Stricture of urethra, organic	1	12	8	3	......	....	2	50	63
Recto-urethral fistula	......	1	......	......	1	....	......	......	1
Hypertrophy of prostate gland	......	......	......	......	......	....	......	9	9
Acute inflammation of prostate gland	......	1	1	......	......	....	......	1	2
Chronic inflammation of prostate gland	......	......	......	......	......	....	......	1	1
Inflammation of glans penis	......	1	1	......	......	....	......	......	1
Abscess of penis	......	2	1	1	......	....	......	11	13
Ulcer of penis	2	20	13	6	......	....	3	99	121
Phimosis	......	2	1	......	......	....	1	4	6
Inflammation of the scrotum	......	......	......	......	......	....	......	1	1
Abscess of the scrotum	......	......	......	......	......	....	......	2	2
Varicocele	......	......	......	......	......	....	......	6	6
Hydrocele of tunica vaginalis	......	......	......	......	......	....	......	2	2
Orchitis:									
Acute	1	6	5	2	......	....	......	10	17
Chronic	......	1	......	1	......	....	......	3	4
Epididymitis	......	......	5	2	......	....	......	6	13
Abscess of testicle	......	7	......	......	......	....	......	......	7
Spermatorrhœa	......	......	......	......	......	....	......	1	1
Impotence	......	......	......	......	......	....	......	10	10
Inflammation of the uterus	......	2	1	1	......	....	......	3	5
Inflammation of the vagina	......	......	......	......	......	....	......	1	1
Leucorrhœa	......	......	......	......	......	....	......	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	2	16	7	7	......	....	4	11	29
Periostitis	......	1	1	......	......	....	......	1	2
Osteomyelitis	......	1	......	......	......	....	1	......	1
Necrosis	1	1	......	1	......	....	1	......	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Synovitis:									
Acute	1	5	4	2				1	7
Chronic								1	1
Abscess of joints		1	1						1
Angular curvature of spine		5		3			2	1	6
Inflammation of tendons								4	4
Contraction of tendons and fasciæ		1	1						1
Inflamed bursa		1		1				1	2
Bunion								2	2
DISEASES OF THE CONNECTIVE TISSUE	1	16	10	6	1			18	35
Œdema	1			1				1	2
Inflammation		3		2	1			9	12
Abscess		13	10	3				8	21
DISEASES OF THE SKIN	1	40	29	7	1		4	127	168
Erythema		1		1				5	6
Urticaria		1	1					6	7
Eczema								27	27
Pityriasis								1	1
Psoriasis								3	3
Herpes								7	7
Zona		1	1					1	2
Acne								1	1
Sycosis		1		1					1
Alopecia								1	1
Atrophy of the nails								1	1
Chilblain		1	1					1	2
Frostbite		15	14	1				6	21
Ulcer	1	13	6	3	1		4	36	50
Boil		2	2					20	22
Carbuncle		1	1						1
Whitlow		4	3	1				6	10
Onychia								1	1
Corn								1	1
Wen								1	1
Pruritus								2	2
PARASITIC DISEASES OF THE SKIN		1	1					18	19
Ringworm								4	4
Itch		1	1					9	10
Phthiriasis								5	5
Injuries	**7**	**137**	**109**	**25**	**1**	**2**	**7**	**154**	**298**
GENERAL INJURIES		10	8	1		1		10	20
Burns and scalds		8	6	1		1		8	16
Effects of chemical irritants		1	1					1	2
Multiple injury		1	1					1	2
LOCAL INJURIES	7	127	101	24	1	1	7	144	278
Strain of muscles		3	3					2	5
Abrasion of skin		1	1					2	3
Foreign body in subcutaneous tissue								1	1
Contusion of scalp		4	4						4
Scalp wound:									
Bone not exposed		1	1					8	9
Bone exposed		2	1	1				2	4
Fracture of the vault of the skull		1	1						1
Concussion of brain		1	1						1
Contusion of face		3	3					1	4
Wound of face and mouth		5	3	2				3	8
Fracture of facial bones	1		1						1
Contusion of the eye		1	1					1	2
Foreign body in cornea or conjunctiva		1	1						1
Wound of eyelid		2	1				1	5	7
Contusion of pinna								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE OHIO—Continued.

Diseases.	Number of Cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Contusion of the chest		1	1					5	6
Dislocation of costal cartilages								1	1
Fracture of the ribs		3	3					1	4
Perforating wound of chest		1				1			1
Penetrating wound of pleura or lung		1	1						1
Contusion of back		9	6	3				1	10
Sprain of back		2		1			1	2	4
Wound of back		1		1				1	2
Contusion of abdomen		1	1						1
Wound of parietes of abdomen		1	1						1
Contusion of the pelvis								1	1
Wound of the urethra, perineum, scrotum, and penis		1	1						1
Wound of rectum		1		1					1
Contusion of upper extremities		5	5					18	23
Sprain of the shoulder		1		1				4	5
Sprain of the wrist		1	1					6	7
Wound of the upper extremities		12	10	2				2	14
Wound of joint, upper extremities								23	23
Fracture of the radius		3	1	2				3	6
Fracture of carpus, metacarpus, and phalanges								2	2
Dislocation of the scapula		1	1						1
Dislocation of the humerus		1	1						1
Dislocation of the radius and ulna		1	1						1
Contusion of the lower extremities	1	14	11				4	15	30
Sprain of the knee		1	1					2	3
Sprain of the ankle	1	16	11	5	1			16	33
Sprain of the foot		1		1				1	2
Wound of the lower extremities	1	16	14	3				11	28
Wound of joint, lower extremities								1	1
Fracture of femur	1		1						1
Fracture of cervix femoris	1		1						1
Fracture of leg, both bones		1					1		1
Fracture of tibia alone	1			1					1
Fracture of fibula alone		2	2						2
Dislocation of the femur at the hip		3	3						3
Dislocation of the knee								1	1
Dislocation of the foot at the ankle		1	1					1	2
MISSISSIPPI.									
TOTAL CASES	71	1,152	718	355	47	31	72	3,163	4,386
General Diseases	21	479	290	157	22	8	23	1,499	1,999
Smallpox		7			7			2	9
Cowpox		3	1	2				152	155
Measles		1					1		1
Dengue								1	1
Influenza		8	4	4				24	32
Whooping cough								1	1
Simple continued fever		2		1			1	1	3
Enteric fever		5	4			1			5
Dysentery		15	15					9	24
Malarial intermittent fever	5	112	104	8	2		3	209	326
Malarial remittent fever		19	16	1	1		1	21	40
Malarial cachexia		2	1	1				64	66
Erysipelas, simple		4	4						4
Syphilis:									
Primary		15	4	9	1		1	17	32
Secondary	4	73	8	64	2		3	264	341
Gonorrhœa		25	17	5	1		2	329	354
Animal parasites		2	1	1				4	6
Effects of excessive venery		1	1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Alcoholism	1	10	10	1	......	....	......	10	21
Debility	1	4	......	3	2	....	......	21	26
Rheumatic fever	2	11	12	1	......	....	......	2	15
Rheumatism	4	114	83	31	1	....	3	292	410
Osteo-arthritis	......	1	......	......	1	....	......	......	1
Cysts	......	1	1	......	......	....	......	2	3
Nonmalignant new growth	......	5	2	1	......	1	1	6	11
Malignant new growth	......	4	......	1	1	1	1	......	4
Tubercle	4	33	1	22	3	5	6	42	79
Scrofula	......	1	......	1	......	....	......	2	3
Purpura	......	......	......	......	......	....	......	1	1
Anæmia	......	1	1	......	......	....	......	23	24
Local Diseases	**42**	**531**	**316**	**171**	**22**	**22**	**42**	**1,414**	**1,987**
DISEASES OF THE NERVOUS SYSTEM	5	14	6	6	2	....	5	62	81
Hæmorrhage, cerebral	......	1	......	......	......	....	1	......	1
Inflammation:									
Of membranes of brain and spinal cord	......	1	......	......	1	....	......	......	1
Of cerebral membranes	......	......	......	......	......	....	......	1	1
Spinal meningitis	1	......	......	1	......	....	......	......	1
Myelitis	1	......	......	1	......	....	......	......	1
Neuritis	......	......	......	......	......	....	......	1	1
Sclerosis	......	1	......	......	......	....	1	......	1
Locomotor ataxy	1	......	......	......	......	....	1	......	1
Paralysis	......	......	......	......	......	....	......	1	1
Local paralysis	......	......	......	......	......	....	......	2	2
Anæsthesia	......	......	......	......	......	....	......	2	2
Spasm of muscle	......	......	......	......	......	....	......	2	2
Wry neck	......	......	......	......	......	....	......	3	3
Paralysis agitans	1	......	......	......	......	....	1	......	1
Hyperæsthesia	......	......	......	......	......	....	......	1	1
Neuralgia	1	3	2	2	......	....	......	17	21
Facial	......	2	1	......	1	....	......	11	13
Sciatica	......	4	3	......	......	....	1	3	7
Vertigo	......	......	......	......	......	....	......	7	7
Megrim	......	......	......	......	......	....	......	8	8
Epilepsy	......	2	......	2	......	....	......	3	5
MENTAL DISEASES	......	6	......	2	2	1	1	9	15
Hypochondriasis	......	1	......	1	......	....	......	3	4
Mania	......	1	......	1	......	....	......	2	3
Dementia	......	4	......	......	2	1	1	4	8
DISEASES OF THE EYE	......	16	9	5	1	....	1	31	47
Conjunctivitis	......	8	5	3	......	....	......	17	25
Pterygium	......	2	......	1	1	....	......	......	2
Ulcer of cornea	......	......	......	......	......	....	......	1	1
Iritis	......	3	2	1	......	....	......	2	5
Glaucoma	......	1	......	......	......	....	1	......	1
Atrophy of optic disc or papilla	......	......	......	......	......	....	......	1	1
Retinitis	......	......	......	......	......	....	......	1	1
Asthenopia	......	......	......	......	......	....	......	2	2
Snow blindness	......	1	1	......	......	....	......	......	1
Fistula of lachrymal tracts	......	1	1	......	......	....	......	1	2
Squint	......	......	......	......	......	....	......	1	1
Dacrocystitis	......	......	......	......	......	....	......	1	1
Fistula of nasal duct	......	......	......	......	......	....	......	1	1
Blepharitis	......	......	......	......	......	....	......	1	1
Stye	......	......	......	......	......	....	......	2	2
DISEASES OF THE EAR	......	2	......	2	......	....	......	16	18
Accumulation of wax	......	......	......	......	......	....	......	5	5
Inflammation of the middle ear	......	2	......	2	......	....	......	9	11
Deafness	......	......	......	......	......	....	......	2	2
DISEASES OF THE NOSE	......	......	......	......	......	....	......	8	8
Epistaxis	......	......	......	......	......	....	......	1	1
Nasal catarrh	......	......	......	......	......	....	......	7	7

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM	1	32	5	19	3	2	4	38	71
Pericarditis								1	1
Endocarditis								1	1
Valvular disease:									
Aortic	1	3		1		2	1	3	7
Mitral		15		12			3	27	42
Palpitation and irregular action of heart		1		1				1	2
Arteritis		1			1				1
Aneurism of arteries		4	1	2	1			2	6
Phlebitis		2	2						2
Varix		6	2	3	1			3	9
DISEASES OF THE RESPIRATORY SYSTEM	3	57	43	10	2	5		259	319
Laryngitis, acute		2	2					3	5
Bronchitis:									
Acute	3	13	11	3	2			116	132
Chronic		1		1				58	59
Catarrhal		2	2					35	37
Spasmodic asthma		3		2		1		18	21
Haemorrhage of lung								2	2
Pneumonia		29	24	1		4			29
Cirrhosis of lung								1	1
Pleurisy:									
Acute		7	4	3				10	17
Chronic								14	14
Empyema								2	2
DISEASES OF THE DIGESTIVE SYSTEM	15	155	108	40	5	9	8	556	726
Ulcerative stomatitis								4	4
Inflammation of the dental pulp								1	1
Caries of dentine and cementum								23	23
Inflammation of dental periosteum								1	1
Abscess of dental periosteum								4	4
Inflammation of gums and alveoli		1	1					2	3
Caries of the alveoli		2		1			1		2
Toothache								1	1
Ulcer of the tongue								1	1
Hypertrophy of tonsils								2	2
Elongated uvula								2	2
Relaxed throat								5	5
Sore throat								14	14
Quinsy		4	3	1				1	5
Follicular tonsilitis	1	4	5					9	14
Inflammation of salivary glands								1	1
Follicular inflammation of the pharynx		1	1					11	12
Post-pharyngeal abscess		1				1			1
Inflammation of the stomach	2	10	7	4	1			17	29
Dyspepsia		13	4	7	1	1		65	78
Gastrodynia		2	2					1	3
Inflammation of the intestines:									
Catarrhal	2	29	24	6		1		41	72
Ulcerative	1	3	1	3				1	5
Hernia	1	7	4	1	2		1	76	84
Diarrhœa	2	33	29	1		1	4	99	134
Constipation		4	3	1				118	122
Colic		3	3					14	17
Ulceration of the rectum		1					1		1
Piles:									
Internal	2	4	4	2				4	10
External	1	7	6	1	1			15	23
Stricture of the rectum		2		1		1			2
Fistula in ano		4	3			1	1	3	7
Fissure of the anus		2	1						2
Congestion of the liver		1		1				2	3
Hepatitis								1	1
Perihepatitis								2	2
Cirrhosis of liver	1	7		7		1		3	11
Abscess of liver		2				2			2
Jaundice	1	4	3	2				12	17

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Inflammation of hepatic ducts and gall bladder	1	2	2	1	......	....	......	....	3
Gallstones	......	1	1	......	......	....	......	....	1
Ascites	......	1	1	......	......	....	......	....	1
DISEASES OF THE LYMPHATIC SYSTEM	2	31	17	8	3	....	5	22	55
Induration and enlargement of spleen from ague	......	1	1	1	......	....	......	1	2
Hypertrophy of lymph glands	......	1	1	......	......	....	......	......	1
Inflammation of lymph glands	1	9	2	6	2	....	......	9	19
Suppuration of lymph glands	1	20	14	1	1	....	5	12	33
DISEASES OF THE THYROID BODY	......	......	......	......	......	....	......	1	1
Goitre	......	......	......	......	......	....	......	1	1
DISEASES OF THE URINARY SYSTEM	2	21	3	11	1	4	4	55	78
Acute nephritis	......	......	......	......	......	....	......	1	1
Bright's disease	2	12	......	7	1	3	3	14	28
Hæmaturia	......	1	1	......	......	....	......	2	3
Lithuria	......	......	......	......	......	....	......	1	1
Hypertrophy of bladder	......	1	......	1	......	....	......	1	2
Hæmorrhage of bladder	......	4	1	2	......	1	......	9	13
Inflammation of bladder, chronic	......	2	......	1	......	....	1	2	4
Irritability of bladder	......	1	1	......	......	....	......	21	22
Incontinence of urine	......	......	......	......	......	....	......	4	4
DISEASES OF THE GENERATIVE SYSTEM	6	101	61	39	......	1	6	205	312
Urethritis	......	3	......	3	......	....	......	5	8
Gleet	......	1	......	1	......	....	......	6	7
Stricture of urethra, organic	......	16	7	7	......	....	2	27	43
Chronic inflammation of prostate gland	......	1	......	......	......	1	......	....	1
Inflammation of glans penis	......	......	......	......	......	....	......	2	2
Ulcer of penis	3	48	33	17	......	....	1	130	181
Phimosis	1	8	7	1	......	....	1	....	9
Paraphimosis	......	1	......	1	......	....	......	1	2
Chordee	......	......	......	......	......	....	......	1	1
Abscess of the scrotum	......	1	......	1	......	....	......	2	3
Pruritis of the scrotum	......	......	......	......	......	....	......	1	1
Hydrocele of spermatic cord	......	1	1	......	......	....	......	1	2
Hydrocele of tunica vaginalis	......	4	1	2	......	....	1	3	7
Orchitis:									
Acute	......	12	9	2	......	....	1	13	25
Chronic	......	3	......	3	......	....	......	6	9
Epididymitis	2	1	2	1	......	....	......	....	3
Abscess of testicle	......	1	1	......	......	....	......	1	2
Spermatorrhœa	......	......	......	......	......	....	......	6	6
DISEASES OF THE ORGANS OF LOCOMOTION	2	20	7	12	......	....	3	10	32
Periostitis	......	6	1	5	......	....	......	3	9
Caries	1	2	......	3	......	....	......	....	3
Necrosis	......	2	1	......	......	....	1	1	3
Dropsy of joints	......	2	2	......	......	....	......	1	3
Synovitis, acute	1	4	3	......	......	....	2	2	7
Ankylosis	......	1	......	1	......	....	......	....	1
Loose body in joint	......	2	......	2	......	....	......	....	2
Bunion	......	1	......	1	......	....	......	3	4
DISEASES OF THE CONNECTIVE TISSSUE	1	28	23	4	2	....	......	44	73
Œdema	......	3	3	......	......	....	......	1	4
Inflammation	......	6	5	......	1	....	......	18	24
Abscess	1	19	15	4	1	....	......	25	45
DISEASES OF THE SKIN	5	45	32	13	1	....	4	89	139
Erythema	1	....	1	......	......	....	......	1	2
Urticaria	......	....	......	......	......	....	......	8	8
Eczema	1	1	1	......	......	....	1	25	27

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Intertrigo	1			1				2	3
Ecthyma								2	2
Pityriasis		1			1			2	3
Lichen								1	1
Psoriasis								5	5
Herpes								9	9
Acne								2	2
Frostbite		9	6	3				3	12
Ulcer	2	26	19	7			2		28
Fissures								1	1
Boil		2	1	1				9	11
Carbuncle		3	2	1				3	6
Whitlow		3	2				1	4	7
Onychia								3	3
Corn								1	1
Wen								1	1
Pruritus								7	7
PARASITIC DISEASES OF THE SKIN								2	2
Ringworm								1	1
Itch								1	1
Poisons		**3**	**2**				**1**	**7**	**10**
Metals and their salts								1	1
Exanthema								1	1
Vegetable poisons		3	2				1	5	8
Injuries	**8**	**142**	**112**	**27**	**3**	**1**	**7**	**250**	**400**
GENERAL INJURIES		7	6	1				11	18
Burns and scalds		4	3	1				9	13
Effects of cold								2	2
Heat stroke		3	3						3
LOCAL INJURIES	8	134	105	26	3	1	7	239	381
Strain of muscles		2	2					10	12
Strain of tendons								1	1
Contusion of scalp		1	1					1	2
Scalp wound:									
Bone not exposed		6	3	3				9	15
Bone exposed								6	6
Wound of the skull		1	1						1
Contusion of face		2	1	1				2	4
Wound of face and mouth		1	1					4	5
Fracture of facial bones		1	1					3	4
Contusion of the eye		1	1					1	2
Foreign body in cornea or conjunctiva								2	2
Wound of eyelid		1	1					1	2
Wound of the sclerotic		1		1					1
Wound of the cornea		1			1				1
Foreign body in external meatus								1	1
Contusion of the chest		4	4					9	13
Fracture of the ribs		3	3					1	4
Wound of parietes of chest		1	1					1	2
Contusion of back		8	7	1				2	10
Sprain of back		9	6	2			1	29	38
Wound of back		2	1	1				1	3
Contusion of abdomen		3	1	1		1		2	5
Wound of parietes of abdomen								1	1
Contusion of the urethra, perineum, scrotum, and penis								1	1
Contusion of upper extremities		5	4				1	13	18
Sprain of the shoulder								4	4
Sprain of the elbow								2	2
Sprain of the wrist								5	5
Sprain of the fingers								1	1
Wound of the upper extremities		16	9	4	2		1	57	73
Fracture of the clavicle		1	1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Fracture of the scapula								2	2
Fracture of the humerus		1		1				1	2
Fracture of the radius		4	1	2			1	4	8
Fracture of carpus, metacarpus, and phalanges		8	3	5				3	11
Dislocation of the carpus		1	1					1	2
Contusion of the lower extremities	1	22	20	1			2	27	50
Sprain of the hip								1	1
Sprain of the knee		1	1					6	7
Sprain of the ankle		3	3					15	18
Sprain of the foot		2	2						2
Wound of the lower extremities	2	14	13	3				8	24
Wound of joint, lower extremities		1	1						1
Fracture of femur		1					1		1
Fracture of patella								1	1
Fracture of leg, both bones	2		2						2
Fracture of tibia alone	2	3	5						5
Fracture of fibula alone		3	3						3
Fracture of metatarsus	1		1						1
AMPUTATIONS		1	1						1
Amputation of fingers		1	1						1

THE GREAT LAKES.

TOTAL CASES	**175**	**2,192**	**1,459**	**631**	**68**	**59**	**150**	**8,625**	**10,992**
General Diseases	**66**	**874**	**501**	**317**	**26**	**27**	**69**	**3,768**	**4,708**
Smallpox		1			1			2	3
Cowpox		4	3		1			121	125
Chicken pox								1	1
Measles		6	6					5	11
Epidemic rose rash		1	1						1
Influenza		49	48				1	181	230
Whooping cough								1	1
Mumps								2	2
Diphtheria		1		1					1
Simple continued fever		11	7	2	2			6	17
Enteric fever	5	68	55	2	2	7	7	9	82
Typhomalarial fever		1					1		1
Sporadic cholera		4	3				1	2	6
Dysentery		11	8	3				31	42
Malarial intermittent fever	7	70	62	10	2		3	154	231
Malarial remittent fever	1	28	26	1		1	1	7	36
Malarial cachexia								5	5
Phagedæna	1			1					1
Erysipelas:									
Simple		10	8			2		9	19
Phlegmonous		2	2						2
Septicæmia		1	1						1
Syphilis:									
Primary	1	21	4	15			3	83	105
Secondary	6	118	8	109	2		5	839	963
Gonorrhœa	7	37	22	19			3	1,144	1,188
Animal parasites		9	8				1	12	21
Effects of excessive venery								1	1
Alcoholism	8	47	47	6			2	43	98
Delirium tremens	1	7	8					2	10
Debility		10	4	3	1		2	132	142
Rheumatic fever	1	34	18	13	2		2	5	40
Rheumatism	8	217	136	67	3		19	770	995
Osteo-arthritis	1						1		1
Cysts		1	1					8	9
Nonmalignant new growth		10	7	3				19	29

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Malignant new growth		5	3		1	1			5
Tubercle	19	87	3	61	9	16	17	164	270
Scrofula		1		1				2	3
Purpura		1	1						1
Anæmia		1	1					7	8
Glycosuria								1	1
Local Diseases	**75**	**888**	**597**	**246**	**34**	**28**	**58**	**4,225**	**5,188**
DISEASES OF THE NERVOUS SYSTEM	11	65	28	29	4		15	214	290
Congestion								2	2
Myelitis								1	1
Neuritis		2	1	1				3	5
Sclerosis	1	1		2				1	3
Locomotor ataxy	5	7		4	2		6	2	14
Apoplexy		2		1			1		2
Hemiplegia	1	4		2			3		5
Paraplegia		1					1	4	5
Local paralysis	2			1	1			11	13
Anæsthesia								1	1
Spasm of muscle								2	2
Wryneck		1		1				2	3
Paralysis agitans	1	1		1	1			1	3
Neuralgia		23	15	6			2	86	109
Facial		3	3					40	43
Sciatica		14	6	7			1	13	27
Vertigo								7	7
Megrim		1	1					18	19
Epilepsy	1	5	2	3			1	20	26
MENTAL DISEASES	1	3	2	1	1			4	8
Hypochondriasis	1	1	2					3	5
Insanity		1		1				1	2
Melancholia		1			1				1
DISEASES OF THE EYE	5	22	12	10	4		1	107	134
Conjunctivitis	3	13	8	5	2		1	76	92
Pterygium		4	2	2				7	11
Opacity of cornea								1	1
Iritis	1	2	2	1				4	7
Atrophy of optic disk or papilla	1			1				4	5
Cataract		2		1	1			3	5
Ametropia								1	1
Amblyopia								3	3
Hæmatoma								1	1
Blepharitis								1	1
Stye								1	1
Ptosis		1			1			3	4
Chalazion								2	2
DISEASES OF THE EAR		3	2	1				49	52
Inflammation of the external meatus:									
Acute								4	4
Chronic								1	1
Abscess of the external meatus		1	1					1	2
Accumulation of wax								15	15
Inflammation of the middle ear		2	1	1				24	26
Perforation of the membrana tympani								1	1
Tinnitus								1	1
Deafness								2	2
DISEASES OF THE NOSE		1	1					55	56
Epistaxis								1	1
Inflammation		1	1					7	8
Nasal catarrh								46	46
Abscess								1	1
DISEASES OF THE CIRCULATORY SYSTEM	2	30	7	17		5	3	86	112
Pericarditis		2	1			1			8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Valvular disease:									
Aortic		6	1	1		3	1	3	9
Mitral	1	11		10		1	1	28	40
Hypertrophy of heart		1		1				5	6
Degeneration of heart, fatty								2	2
Dilatation of heart								6	6
Palpitation and irregular action of heart		2	1	1				14	16
Degeneration of arteries	1						1	9	10
Aneurism of arteries		1		1				2	3
Obstruction of arteries		1		1				1	2
Phlebitis								2	2
Varix		6	4	2				14	20
DISEASES OF THE RESPIRATORY SYSTEM	13	212	143	55	11	10	6	1,053	1,278
Hay asthma		1		1				3	4
Laryngitis:									
Acute		2		2				11	13
Chronic								1	1
Bronchitis:									
Acute	1	112	84	20	5	2	2	852	965
Chronic	5	21	8	13	4	1		122	148
Catarrhal		1	1						1
Spasmodic asthma	1	6	2	3		1	1	36	43
Hæmorrhage of lung								1	1
Pneumonia	3	33	23	6		5	2	3	39
Pneumonic phthisis:									
Acute		3		2		1		1	4
Chronic		1		1			1	1	2
Pleurisy:									
Acute	3	28	22	7	2			13	44
Chronic		3	3					7	10
Empyema		1							1
Adhesions of pleura								2	2
DISEASES OF THE DIGESTIVE SYSTEM	6	175	128	37	4	4	8	1,246	1,427
Stomatitis		1	1					9	10
Ulcerative stomatitis		1	1					3	4
Abscess of the antrum		1		1					1
Inflammation of the dental pulp								1	1
Caries of dentine and cementum								33	33
Necrosis of dentine and cementum								1	1
Inflammation of dental periosteum		1	1						1
Abscess of dental periosteum		2	2					17	19
Atrophy of the alveoli								1	1
Ulceration of gums and alveoli								2	2
Toothache								5	5
Ulcer of the tongue								1	1
Hypertrophy of tonsils								1	1
Sore throat		1	1					31	32
Quinsy		5	5					22	27
Follicular tonsilitis		8	6	2				49	57
Ulceration of fauces								2	2
Sloughing sore throat								1	1
Abscess of salivary glands		1	1						1
Salivation								1	1
Follicular inflammation of the pharynx		1	1					42	43
Post-pharyngeal abscess		1		1				2	3
Hæmorrhage of the stomach		1		1				1	2
Inflammation of the stomach	1	16	8	8			1	74	91
Ulceration of the stomach		1		1					1
Dyspepsia		7	4	2	1			276	283
Gastrodynia		1	1					2	3
Hæmorrhage of the intestines		1	1						1
Inflammation of the intestines:									
Catarrhal		13	12				1	9	22
Ulcerative	1		1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged. Recovered.	Discharged. Improved.	Discharged. Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Abscess in the subperitoneal tissue								2	2
Hernia	1	18	14	4		1		121	140
Fistula		2	1		1			5	7
Diarrhœa	1	32	27	4			2	214	247
Constipation		1	1					177	178
Colic		3	3					22	25
Abscess of the rectum		5	4	1					5
Abscess of the anus								3	3
Ulceration of the anus		1	1						1
Piles:									
Internal		8	6	1			1	47	55
External	1	13	8	4	2			33	47
Prolapsus of the rectum		1	1						1
Stricture of the rectum		1		1					1
Fistula in ano		8	6	1			1	3	11
Fissure of the anus		1	1						1
Pruritus ani								11	11
Congestion of the liver		1	1					7	8
Hepatitis		2	2					2	4
Cirrhosis of liver		2		1		1		3	5
Abscess of liver		1	1						1
Cyst of liver		1		1					1
Jaundice		2	1			1		6	8
Inflammation of hepatic ducts and gall bladder		2	2						2
Gallstones								1	1
Ascites	1	3	1	2			1		4
Peritonitis		4	1	1		1	1	3	7
DISEASES OF THE LYMPHATIC SYSTEM	8	63	55	11	1		4	88	159
Splenitis		1	1						1
Hypertrophy of lymph glands		1		1				2	3
Inflammation of lymph vessels	1	2	3					2	5
Inflammation of lymph glands	4	31	27	5			3	64	99
Suppuration of lymph glands	2	27	24	4	1			20	49
Obstruction of lymph vessels		1					1		1
Lymph fistula	1			1					1
DISEASES OF THE URINARY SYSTEM	5	33	15	10	2	8	3	138	176
Congestion of kidney								1	1
Acute nephritis		4	2			1	1	10	14
Bright's disease	4	11		5	2	6	2	20	35
Calculus in kidney								3	3
Diabetes insipidus								4	4
Hæmaturia	1	1	2						2
Lithuria								1	1
Hæmorrhage of bladder		8	5	3				57	65
Inflammation of bladder:									
Acute								3	3
Chronic		4	1	2		1		12	16
Calculus of bladder		1	1						1
Irritability of bladder		2	2					19	21
Retention of urine		1	1					2	3
Incontinence of urine		1	1					6	7
DISEASES OF THE GENERATIVE SYSTEM	7	109	71	36	2	1	6	471	587
Gleet								12	12
Lacunar abscess								34	34
Stricture of urethra, organic	3	26	13	15			1	69	98
Urinary fistula	1	2	1		1		1	2	5
Hypertrophy of prostate gland		1	1					3	4
Acute inflammation of prostate gland								3	3
Abscess of prostate gland								1	1
Œdema of the penis								1	1
Inflammation of glans penis		2	1	1				20	22
Abscess of penis		1		1					1
Ulcer of penis	3	16	15	4				183	202
Phimosis		7	6				1	3	10

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Paraphimosis		2	2						2
Œdema of the scrotum		1	1					1	2
Inflammation of the scrotum								1	1
Abscess of the scrotum								3	3
Inflammation of spermatic cord								1	1
Varicocele		1	1					25	26
Hæmatocele of tunica vaginalis		9	7	2				9	18
Hydrocele of tunica vaginalis								1	1
Orchitis:									
Acute		18	13	3			2	16	34
Chronic		1		1				5	6
Epididymitis		14	6	8				28	42
Testicle retained in abdomen								2	2
Spermatorrhœa								20	20
Impotence								7	7
Inflammation of the ovary		1		1				1	2
Inflammation of Fallopian tube		2	1			1			2
Inflammation of the uterus		1	1					7	8
Laceration of the cervix								1	1
Prolapse of the vagina								2	2
Abscess of the vulva		1	1						1
Amenorrhœa								2	2
Dysmenorrhœa								1	1
Monorrhagia								1	1
Leucorrhœa		1			1			4	5
Abortion		1	1						1
Hysteralgia								1	1
Spurious pains, pregnancy		1					1	1	2
DISEASES OF THE ORGANS OF LOCOMOTION	7	27	14	13	3		4	33	67
Ostitis	1			1				1	2
Periostitis	2	3	2	3				3	8
Caries		4		2			2		4
Necrosis	2	4	3	1	1		1	4	10
Synovitis, acute	1	6	3	4				9	16
Ankylosis		2	1	1				1	3
Loose body in joint								1	1
Psoas, lumbar, and other abscesses	1						1		1
Inflammation of muscles		1		1					1
Inflammation of tendons								2	2
Contraction of tendons and faciæ		2	1		1			2	4
Club foot		1			1				1
Flat foot								2	2
Inflamed bursa		1	1					7	8
Bursal abscess		2	2						2
Bunion		1	1					1	2
DISEASES OF THE CONNECTIVE TISSUE	3	51	42	6	1		5	52	106
Œdema	1	2	2	1					3
Inflammation	1	4	3	2				14	19
Abscess	1	45	37	3	1		5	38	84
DISEASES OF THE SKIN	6	89	70	20	1		4	545	640
Erythema								12	12
Urticaria	1		1					22	23
Eczema		5	2	2			1	148	153
Impetigo		1					1		1
Ecthyma		1	1						1
Prurigo								3	3
Lichen								4	4
Psoriasis		3	1	2				23	26
Miliaria								4	4
Herpes								33	33
Zona		1	1					2	3
Pemphigus	1			1				5	6
Acne								26	26
Sycosis								8	8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Steatorrhœa								1	1
Leneoderme								2	2
Alopecia								5	5
Chilblain								1	1
Frostbite		8	6	2				6	14
Ulcer	4	44	39	7	1		1	99	147
Boil		6	4	1			1	82	88
Carbuncle		5	3	2				14	19
Whitlow		11	9	2				23	34
Onychia		2	2					6	8
Corn								2	2
Cheloid								1	1
Wen		2	1	1				6	8
Pruritus								5	5
Hyperidrosis								2	2
PARASITIC DISEASES OF THE SKIN		2	2					78	80
Ringworm								15	15
Favus		1	1					1	2
Tinea versicolor								5	5
Itch		1	1					45	46
Phthiriaris								12	12
Poisons	**1**	**4**	**5**					**8**	**13**
Metals and their salts	1		1					2	3
Lead colic		1	1						1
Vegetable poisons		3	3					6	9
Injuries	**33**	**429**	**359**	**68**	**8**	**4**	**23**	**625**	**1,087**
GENERAL INJURIES	2	31	31	1			1	50	83
Burns and scalds	2	15	15	1			1	45	62
Heat stroke		10	10					3	13
Multiple injury		6	6					2	8
LOCAL INJURIES	31	398	328	67	8	4	22	575	1,004
Wound of arteries		1	1						1
Strain of muscles	1	3	3	1				34	38
Rupture of muscles		2	2						2
Strain of tendons								1	1
Rupture of tendons		1	1						1
Abrasion of skin		4	2	2				5	9
Foreign body in subcutaneous tissue		1	1						1
Contusion of scalp		2	2					2	4
Scalp wound:									
Bone not exposed		16	14	1			1	21	37
Bone exposed		6	6						6
Contusion of skull								1	1
Fracture of the vault of the skull	1	2	2			1			3
Fracture of the base of the skull		1	1						1
Concussion of brain		2		1		1		1	3
Contusion of face		7	4	3				4	11
Wound of face and mouth		18	13	3	2			19	37
Fracture of facial bones		9	5		1	2	1	5	14
Contusion of the eye		2	2					2	4
Foreign body in cornea or conjunctiva								14	14
Wound of eyelid	1	1	2					1	3
Wound of the cornea								3	3
Wound of pinna		1	1					1	2
Foreign body in external meatus								2	2
Contusion of soft parts of neck		1	1						1
Wound of neck								1	1
Foreign body in the œsophagus		1	1					1	2
Contusion of the chest		15	12	2	1			26	41
Fracture of the ribs		16	10	6				5	21
Wound of parietes of chest		2	1	1				1	3
Perforating wound of chest		2		2					2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Contusion of back	1	23	19	4			1	22	46
Sprain of back		24	18	4			2	22	46
Wound of back		3	3						3
Concussion of cord		2	2						2
Contusion of abdomen		3	2	1				3	6
Wound of parietes of abdomen								1	1
Contusion of the pelvis	1		1						1
Contusion of penis		2	1	1				1	3
Wound of perineum and scrotum								1	1
Rupture of urethra		1	1						1
Fracture of pelvis		1	1					2	3
Contusion of upper extremities	2	18	16	3			1	69	89
Sprain of the shoulder		2	2					4	6
Sprain of the elbow								1	1
Sprain of the wrist	2	3	4				1	19	24
Sprain of the fingers								9	9
Wound of the upper extremities	1	42	33	5			5	105	148
Wound of joint, upper extremities		1	1						1
Fracture of the clavicle		1	1					2	3
Fracture of the scapula		1					1		1
Fracture of the humerus	1	1	2						2
Fracture of the radius		12	6	3	1		2	5	17
Fracture of the ulna	1	1	2					2	4
Fracture of both bones of forearm		1	1						1
Fracture of carpus, metacarpus, and phalanges	2	2	3	1				7	11
Dislocation of the clavicle		2	2					1	3
Dislocatien of the humerus		4	4					3	7
Dislocation of the phalanges of thumb								1	1
Dislocation of the phalanges of fingers		1	1						1
Contusion of the lower extremities	5	43	38	6	2		2	50	98
Sprain of the hip		1	1					2	3
Sprain of the knee		7	5	1			1	4	11
Sprain of the ankle	2	29	22	7	1		1	44	75
Sprain of the foot		2	2					2	4
Wound of the lower extremities	3	23	21	4			1	29	55
Fracture of femur	2	4	4	1			1	7	13
Fracture of patella		1	1						1
Fracture of leg, both bones		9	7	2				1	10
Fracture of tibia alone	1	3	3				1		4
Fracture of fibula alone	3	7	9	1				1	11
Fracture of tarsus								1	1
Fracture of metatarsus		1	1					4	5
Fracture of phalanges of toes		1	1						1
Dislocation of the knee	1			1					1
AMPUTATIONS	1	1	2					7	9
Fingers		1	1					7	8
Leg	1		1						1

THE PACIFIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**124**	**1,454**	**777**	**531**	**35**	**69**	**166**	**3,535**	**5,113**
General Diseases	**40**	**507**	**237**	**218**	**7**	**31**	**54**	**1,477**	**2,024**
Influenza		17	15	1			1	44	61
Mumps		1	1					3	4
Simple continued fever		1	1						1
Enteric fever	2	12	9	1		3	1		14
Sporadic cholera								3	3
Dysentery	2	14	10	4		2		11	27
Malarial intermittent fever	2	42	40	3		1		74	118
Malarial remittent fever	2	17	16	1		1	1		19
Malarial cachexia		2	1	1				8	10

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Erysipelas, simple	1	10	10				1	7	18
Septicæmia		1	1						1
Syphilis:									
Primary	1	8		8			1	49	58
Secondary	4	84	2	75	2	2	7	309	397
Gonorrhœa	1	51	24	24			4	472	524
Animal parasites		2	1	1				3	5
Scurvy		7	6	1				2	9
Alcoholism		11	7	3			1	14	25
Debility		3	1	1	1			15	18
Rheumatic fever	3	39	36	2			4	41	83
Rheumatism	5	103	47	50	1		10	268	376
Gout	1		1						1
Osteo-arthritis	1	1		1			1	1	3
Cysts	1		1						1
Nonmalignant new growth		4	1	3				9	13
Malignant new growth		9	2	1	2	2	2	1	10
Tubercle	12	64	3	35	1	18	19	115	191
Scrofula		1		1				1	2
Leprosy	1						1		1
Purpura								1	1
Anæmia		1	1					11	12
Hæmophilia								1	1
Diabetes mellitus	1	2		1		2		14	17
Local Diseases	**62**	**655**	**332**	**244**	**24**	**34**	**83**	**1,555**	**2,272**
DISEASES OF THE NERVOUS SYSTEM	15	62	23	22	4	5	23	75	152
Inflammation of brain and its membranes		1				1			1
Myelitis	1			1					1
Neuritis		2	1				1		2
Sclerosis		1		1					1
Spastic spinal paralysis	1						1		1
Locomotor ataxy	1	7		1			7		8
Paralysis		1					1		1
Hemiplegia	4	5	1			2	6		9
Paraplegia		2		1	1				2
Local paralysis	1	2	1	2				7	10
Ophthalmoplegia externa		1			1				1
Spasm of muscle		2		1		1		1	3
Hyperæsthesia		1			1			3	4
Neuralgia	3	17	11	6		1	2	26	46
Facial		2	2					11	13
Sciatica	3	3	4	1			1	12	18
Vertigo	1	3		4				3	7
Megrim		3	2	1				4	7
Epilepsy		8		3	1		4	8	16
Chorea		1	1						1
MENTAL DISEASES	1	10	1	7	2		1	22	33
Hypochondriasis	1	7	1	6	1			21	20
Melancholia		2		1			1		2
Dementia		1			1			1	2
DISEASES OF THE EYE	1	21	11	7	1		3	36	58
Conjunctivitis		3	3					20	23
Ulcer of cornea		2	1	1				4	6
Staphyloma of cornea	1	1		1					1
Iritis	1	5	4	1			1	3	9
Atrophy of optic disc or papilla		1					1		1
Hæmorrhage into retina								2	2
Retinitis		2		2					2
Cataract								1	1
Ametropia								1	1
Amblyopia		1		1					1
Nystagmus		1					1		1
Dacrocystitis		1		1					1
Stricture of nasal duct								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE EYE—Continued.									
Hæmatoma		2	2						2
Blepharitis								1	1
Stye								1	1
Trichiasis								1	1
Ectropion		1			1				1
Ptosis		1	1						1
Chalazion								1	1
DISEASES OF THE EAR	1	7	3	5				31	39
Inflammation of the external meatus:									
Acute								4	4
Chronic								1	1
Abscess of the external meatus								1	1
Accumulation of wax								5	5
Inflammation of the middle ear	1	7	3	5				13	21
Obstruction of Eustachian tube								5	5
Tinnitus								2	2
DISEASES OF THE NOSE	1	6		7				25	32
Hypertrophy								4	4
Epistaxis		1		1				1	2
Inflammation								1	1
Nasal catarrh	1	5		6				17	23
Abscess								1	1
Ulceration								1	1
DISEASES OF THE CIRCULATORY SYSTEM	6	47	1	30	1	9	12	36	89
Endocarditis		3	1	2					3
Valvular disease:									
Aortic	2	11		7		5	1	2	15
Mitral	1	25		15	1	3	7	13	39
Hypertrophy of heart								1	1
Degeneration of heart, fatty								2	2
Angina pectoris								2	2
Palpitation and irregular action of heart	1	2		2		1		14	17
Aneurism of arteries	1	5		2			4		6
Obstruction of arteries	1			1					1
Phlegmasia dolens								1	1
Varix		1		1				1	2
DISEASES OF THE RESPIRATORY SYSTEM	4	107	71	23	3	6	8	263	374
Laryngitis, acute								3	3
Ulceration of larynx		1	1						1
Bronchitis:									
Acute	1	52	42	8	1		2	213	266
Chronic		17	4	10	2	1		24	41
Catarrhal		1	1					1	2
Spasmodic asthma		2	1			1		10	12
Passive congestion of lung	1	2	2	1				1	4
Hæmorrhage of lung		1					1		1
Pneumonia		11	7	1		2	1	3	14
Emphysema		3		1		1	1		3
Hydrothorax		2		1			1		2
Pleurisy:									
Acute	1	15	13			1	2	6	22
Chronic								1	1
Empyema	1			1					1
Adhesions of pleura								1	1
DISEASES OF THE DIGESTIVE SYSTEM	5	111	67	34	3	7	5	446	562
Stomatitis								1	1
Ulcerative stomatitis								5	5
Abscess of the antrum		1					1		1
Necrosis of dentine and cementem								20	20
Abscess of dental periosteum								4	4
Ulceration of gums and alveoli		1		1				1	2
Caries of the alveoli		1		1					1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Ulcer of the tongue								1	1
Sore throat		1	1					31	32
Quinsy		5	5					12	17
Follicular tonsilitis		7	7					19	26
Ulceration of fauces								1	1
Salivation		1	1					2	3
Follicular inflammation of the pharynx		1	1					8	9
Post-pharyngeal abscess		1	1						1
Ulceration of pharynx		1		1					1
Dysphagia	1					1			1
Inflammation of the stomach	1	14	9	5	1			89	104
Ulceration of the stomach		1		1					1
Dilatation of the stomach								1	1
Dyspepsia	1	11	9	2			1	46	58
Vomiting		1		1				1	2
Inflammation of the intestines:									
Catarrhal		4	1			2	1	6	10
Ulcerative		1	1						1
Obstruction of the intestines		1	1						1
Hernia		11	8	1			2	59	70
Diarrhœa		8	5	2	1			37	45
Constipation		4	3	1				56	60
Colic		1		1				5	6
Hæmorrhage of the rectum								1	1
Ulceration of the rectum								1	1
Piles:									
Internal		1		1					1
External		6	2	3	1			14	20
Prolapsus of the anus		1		1					1
Fistula in ano	1	10	3	8				6	17
Hypertrophy of the liver	1	1	1	1				5	7
Congestion of the liver		4	3	1				8	12
Hepatitis		1				1			1
Perihepatitis		1				1			1
Cirrhosis of liver		1		1				1	2
Abscess of liver		2		1		1			2
Jaundice		1	1					1	2
Inflammation of hepatic ducts and gall bladder		4	3			1		3	7
Biliary colic		1	1						1
Ascites								1	1
DISEASES OF THE LYMPHATIC SYSTEM	3	28	17	11			3	46	77
Congestion of the spleen								2	2
Atrophy of lymph glands								2	2
Inflammation of lymph vessels	1	6	3	3			1	19	26
Suppuration of lymph vessels	2	20	14	6			2	22	44
Inflammation of lymph glands		2		2				1	3
DISEASES OF THE URINARY SYSTEM	4	33	8	20		5	4	54	91
Congestion of kidney								1	1
Acute nephritis		4	1	2		1		2	6
Bright's disease	1	12		7		3	3	8	21
Calculus in kidney								1	1
Diabetes insipidus		1		1					1
Hæmaturia		2	1	1					2
Lithuria		1		1					1
Hypertrophy of bladder		1	1						1
Inflammation of bladder:									
Acute	1	9	5	4			1	10	20
Subacute								6	6
Chronic	2	3		4		1		16	21
Irritability of bladder								9	9
Incontinence of urine								1	1
DISEASES OF THE GENERATIVE SYSTEM	1	76	47	25	2	1	2	177	254
Urethritis		3	2	1				3	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Gleet								19	19
Stricture of urethra, organic		30	16	10	2	1	1	39	69
Extravasation of urine		1		1					1
Hypertrophy of prostate gland		2		2					2
Acute inflammation of prostate gland								1	1
Œdema of the penis		1	1					2	3
Inflammation of the penis		1					1		1
Inflammation of glans penis								6	6
Abscess of penis								1	1
Ulcer of penis	1	14	11	4				60	75
Phimosis		1	1						1
Paraphimosis		2	2						2
Varicocele		3	2	1				10	13
Hydrocele of tunica vaginalis		5	3	2				5	10
Orchitis:									
Acute		10	7	3				14	24
Chronic								1	1
Epididymitis		2	2					6	8
Spermatorrhœa								5	5
Impotence								5	5
Inflammation of the male breast		1		1					1
DISEASES OF THE ORGANS OF LOCOMOTION	9	31	11	11	6	1	11	27	67
Ostitis	1	2	1	1			1		3
Periostitis								1	1
Caries		6	1	2	3			1	7
Necrosis	1	2	2		1				3
Ununited fracture, or false joint		2					2		2
Synovitis:									
Acute	1	8	3	2		1	3	4	13
Chronic	2	1		1	2			3	6
Ankylosis		1		1					1
Degeneration of cartilage	2	1		1			2		3
Loose body in joint								1	1
Dislocation of articular cartilage								1	1
Relaxation of ligaments								1	1
Psoas, lumber, and other abscesses	1	1	1	1					2
Angular curvature of spine		2		1			1		2
Lateral curvature of spine		1		1					1
Posterior curvature of spine		1					1		1
Inflammation of muscles								6	6
Atrophy of muscles								1	1
Inflammation of tendons								1	1
Flat-foot	1						1		1
Inflamed bursa		2	2					6	8
Bursal abscess								1	1
Thecal abscess		1	1						1
DISEASES OF THE CONNECTIVE TISSUE	8	33	26	11	1		3	67	108
Inflammation		4	3	1				22	26
Abscess	8	29	23	10	1		3	45	82
DISEASES OF THE SKIN	3	81	44	31	1		8	229	313
Urticaria		2	2					5	7
Eczema		8	5	2			1	57	65
Intertrigo								2	2
Pityriasis								4	4
Prurigo								2	2
Lichen								2	2
Psoriasis		2		2				2	4
Herpes								11	11
Zona								3	3
Acne								9	9
Sycosis		2		2				8	10
Chloasma								1	1
Chilblain								1	1
Frostbite		8	8						8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Ulcer	3	36	15	16	1		7	52	91
Boil		11	3	8				37	48
Carbuncle		2	2					7	9
Whitlow		8	7	1				25	33
Wen		1	1						1
Pruritus								1	1
Hyperidrosis		1	1						1
PARASITIC DISEASES OF THE SKIN		2	2					21	23
Ringworm								10	10
Tinea versicolor								2	2
Itch		2	2					6	8
Phthiriasis								3	3
Poisons								1	1
Vegetable poisons								1	1
Injuries	22	292	208	69	4	4	29	502	816
GENERAL INJURIES	1	32	22	8		1	2	42	75
Burns and scalds		7	2	5				12	19
Effects of cold	1	11	11	1				23	35
Effects of chemical irritants		1		1				5	6
Multiple injury		13	9	1		1	2	1	14
Exhaustion								1	1
LOCAL INJURIES	21	260	186	61	4	3	27	460	741
Bruise of muscles								1	1
Strain of muscles	1	3	2	1			1	13	17
Rupture of muscles								1	1
Strain of tendons								5	5
Foreign body in subcutaneous tissue								1	1
Contusion of scalp		6	5	1				2	8
Scalp wound:									
Bone not exposed		4	3	1				24	28
Bone exposed		2	2					1	3
Concussion of brain		1		1				1	2
Compression of brain		1	1						1
Contusion of face	1	4	3	1			1	2	7
Wound of face and mouth		2	1	1				10	12
Fracture of facial bone	1	3	1	2			1		4
Contusion of the eye		1	1					5	6
Contusion of the eye with rupture of sclerotic		1		1				1	2
Foreign body in cornea or conjunctiva								5	5
Wound of eyelid								1	1
Wound of the cornea								1	1
Wound of pinna		1	1						1
Rupture of membrana tympani								1	1
Wound of neck		1	1						1
Foreign body in the œsophagus								1	1
Contusion of the chest		4	3	1				25	29
Fracture of the ribs		8	5	3				4	12
Wounds of parietes of chest		2	1	1				2	4
Contusion of back	1	16	14	1	1		1	13	30
Sprain of back		8	5	3				29	37
Wound of back		2	2						2
Fracture of spine		1				1			1
Concussion of cord		1		1					1
Contusion of abdomen		1	1					1	2
Wound of parietes of abdomen		1	1					4	5
Contusion of the pelvis		1	1					1	2
Wound of the urethra, perineum, scrotum, and penis		3	3					1	4
Rupture of urethra		1		1					1
Fracture and dislocation of pelvis	1	2	1	2					3
Contusion of testicle		3	2				1	1	4
Contusion of upper extremities	2	13	12	2			1	49	64

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Sprain of the shoulder		4	3	1				5	9
Sprain of the elbow								4	4
Sprain of the wrist		3	2	1				6	9
Sprain of the fingers								3	3
Wound of the upper extremities	2	20	19	3				98	120
Wound of joint, upper extremities		1		1				2	3
Fracture of the clavicle	1	2	1	2				2	5
Fracture of the humerus		2		2					2
Fracture of the radius	2	4	3	2			1	3	9
Fracture of the ulna		2	2					2	4
Fracture of both bones of forearm	1		1						1
Fracture of carpus, metacarpus, and phalanges	2	4	5	1				8	14
Dislocation of the humerus		5	2	1	1		1	4	9
Dislocation of the ulna		1		1					1
Dislocation of the metacarpus								2	2
Dislocation of the phalanges of fingers								5	5
Contusion of the lower extremities	2	37	32	5	1		1	44	83
Sprain of the hip								1	1
Sprain of the knee		1	1					11	12
Sprain of the ankle		15	11	3			1	15	30
Sprain of the foot								1	1
Wound of the lower extremities		18	10	4	1	1	2	22	45
Fracture of femur	2	7	4	1			4		9
Fracture of patella	1	2	1	1			1		3
Fracture of leg, both bones	1	18	8	2			9	4	23
Fracture of tibia alone		4	4						4
Fracture of fibula alone		7	2	4			1	2	9
Fracture of tarsus		1	1						1
Fracture of metatarsus		2	1	1					2
Dislocation of the femur at the hip		1				1			1
Dislocation of the knee		1	1						1
Dislocation of the foot at the ankle		1		1					1
Dislocation of the other tarsal bones								5	5
QUARANTINE.									
TOTAL CASES	1	32	28	2			3	55	88
General Diseases	1	26	23	2			2	13	40
Smallpox		3	3						3
Enteric fever		1		1					1
Yellow fever	1	13	14						14
Malarial intermittent fever		4	2				2	1	5
Malarial remittent fever		3	3						3
Syphilis, secondary								1	1
Gonorrhœa								1	1
Alcoholism								1	1
Debility		1	1					1	2
Rheumatism								8	8
Tubercle		1		1					1
Local Diseases		3	2				1	33	36
DISEASES OF THE NERVOUS SYSTEM								2	2
Neuralgia, facial								1	1
Hysteria								1	1
DISEASES OF THE EYE		1	1					1	2
Conjunctivitis		1	1						1
Blepharitis								1	1
DISEASES OF THE EAR								1	1
Accumulation of wax								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1895—Continued.

QUARANTINE—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE RESPIRATORY SYSTEM								1	1
Bronchitis, acute								1	1
DISEASES OF THE DIGESTIVE SYSTEM								15	15
Inflammation of gums and alveoli								1	1
Caries of the alveoli								2	2
Sore throat								1	1
Dyspepsia								2	2
Diarrhœa								2	2
Constipation								5	5
Colic								1	1
Piles, external								1	1
DISEASES OF THE LYMPHATIC SYSTEM								1	1
Inflammation of lymph vessels								1	1
DISEASES OF THE URINARY SYSTEM		1					1	3	4
Hypertrophy of bladder		1					1		1
Inflammation of bladder, acute								3	3
DISEASES OF THE GENERATIVE SYSTEM								1	1
Leucorrhœa								1	1
DISEASES OF THE ORGANS OF LOCOMOTION								1	1
Caries								1	1
DISEASES OF THE CONNECTIVE TISSUE		1	1						1
Abscess		1	1						1
DISEASES OF THE SKIN								6	6
Prurigo								1	1
Psoriasis								1	1
Chilblain								1	1
Ulcer								2	2
Boil								1	1
Poisons								**1**	**1**
Vegetable poisons								1	1
Injuries		**3**	**3**					**9**	**12**
GENERAL INJURIES		3	3						3
Heat stroke		3	3						
LOCAL INJURIES								9	9
Foreign body in subcutaneous tissue								1	1
Wound of face and mouth								1	1
Contusion of back								1	1
Sprain of the shoulder								1	1
Wound of the upper extremities								3	3
Fracture of both bones of forearm								1	1
Contusion of the lower extremities								1	1

TABLE VIII.—TABULAR STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1895.

Causes of death.	Total.	Districts.							
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.
Total Deaths from all Causes	**437**	**48**	**89**	**66**	**41**	**34**	**31**	**59**	**69**
FROM DISEASES	422	47	88	64	41	32	30	55	65
FROM INJURY	15	1	1	2	......	2	1	4	4
General Diseases	**192**	**23**	**49**	**22**	**15**	**17**	**8**	**27**	**31**
Smallpox	1	......	......	......	......	1	......	......	......
Influenza	4	1	1	1	......	1	......	......	......
Diphtheria	1	......	1	......	......	......	......	......	......
Enteric fever	39	7	10	7	1	3	1	7	3
Dysentery	4	......	......	......	1	1	......	......	2
Malarial intermittent fever	6	1	1	1	1	1	......	......	1
Malarial remittent fever	5	......	2	1	......	......	......	1	1
Malarial cachexia	1	......	......	......	1	......	......	......	......
Erysipelas, simple	2	......	......	......	......	......	......	2	......
Syphilis, secondary	2	......	......	......	......	......	......	......	2
Gonorrhœa	1	......	1	......	......	......	......	......	......
Rheumatism	3	......	1	1	......	1	......	......	......
Nonmalignant growth	2	1	......	......	......	......	1	......	......
Malignant new growth	6	1	1	......	......	......	1	1	2
Tubercle	110	11	30	10	11	9	5	16	18
Anæmia	2	......	1	1	......	......	......	......	......
Hæmophilia	1	1	......	......	......	......	......	......	......
Diabetes mellitus	2	......	......	......	......	......	......	......	2
Local Diseases	**230**	**24**	**39**	**42**	**26**	**15**	**22**	**28**	**34**
DISEASES OF THE NERVOUS SYSTEM	21	4	7	5	......	......	......	......	5
Congestion of brain	1	1	......	......	......	......	......	......	......
Inflammation:									
Of brain and its membranes	1	......	......	......	......	......	......	......	1
Of cerebral membranes	2	1	......	1	......	......	......	......	......
Of the brain	2	......	......	2	......	......	......	......	......
Abscess of the brain	1	1	......	......	......	......	......	......	......
Spastic spinal paralysis	1	......	1	......	......	......	......	......	......
Apoplexy	2	1	......	1	......	......	......	......	......
Paralysis	1	......	1	......	......	......	......	......	......
Hemiplegia	4	......	1	1	......	......	......	......	2
Glasso-labio-pharyngeal paralysis	1	......	1	......	......	......	......	......	......
Spasm of muscle	1	......	......	......	......	......	......	......	1
Neuralgia	1	......	......	......	......	......	......	......	1
Sciatica	1	......	1	......	......	......	......	......	......
Epilepsy	2	......	2	......	......	......	......	......	......
MENTAL DISEASES	4	......	......	3	......	......	1	......	......
Mania	1	......	......	1	......	......	......	......	......
Dementia	3	......	......	2	......	......	1	......	......
DISEASES OF THE CIRCULATORY SYSTEM	47	7	5	13	3	3	2	5	9
Pericarditis	4	1	1	1	......	......	......	1	......
Valvular disease:									
Aortic	16	2	......	3	......	1	2	3	5
Mitral	17	1	4	5	2	1	......	1	3
Palpitation and irregular action of heart	1	......	......	......	......	......	......	......	1
Degeneration of arteries	1	......	......	1	......	......	......	......	......
Aneurism of the arteries	7	3	......	3	......	1	......	......	......
Obstruction of arteries	1	......	......	......	1	......	......	......	......
DISEASES OF THE RESPIRATORY SYSTEM	71	6	14	11	11	8	5	10	6
Bronchitis:									
Acute	5	......	......	1	2	......	......	2	......
Chronic	5	......	2	......	1	......	......	1	1
Spasmodic asthma	4	......	......	......	1	......	1	1	1
Passive congestion of lung	2	......	1	1	......	......	......	......	......
Œdema of lung	2	......	......	2	......	......	......	......	......
Pneumonia	40	5	6	6	4	8	4	5	2
Pneumonic phthisis:									
Acute	2	1	......	......	......	......	......	1	......
Chronic	8	......	4	1	3	......	......	......	......
Hydrothorax	1	......	1	......	......	......	......	......	......
Pleurisy, acute	2	......	......	......	......	......	......	......	2

TABLE VIII.—TABULAR STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE, ETC.—Continued.

Causes of death.	Total.	Districts.							
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM	46	3	8	5	8	2	9	4	7
Quinsy	1	1							
Post-pharyngeal abscess	1						1		
Dysphagia	1								1
Hæmorrhage of stomach	1			1					
Inflammation of stomach	5		4			1			
Dyspepsia	1						1		
Inflammation of the intestine	5				1	1	1		2
Ulceration	1				1				
Appendicitis	3		2	1					
Abscess in the subperitoneal tissue	1			1					
Hernia	3			1	1			1	
Fistula of intestines	1				1				
Diarrhœa	2				1		1		
Stricture of the rectum	1						1		
Fistula in ano	1						1		
Hepatitis	2		1						1
Perihepatitis	1								1
Cirrhosis of liver	4	1			1		1	1	
Abscess of liver	5			1	1		2		1
Jaundice	1							1	
Inflammation of hepatic ducts and gall bladder	1								1
Obstruction of hepatic ducts and gall bladder	1		1						
Ascites	1	1							
Peritonitis	2				1			1	
DISEASES OF THE LYMPHATIC SYSTEM	1				1				
Inflammation and enlargement of spleen	1				1				
DISEASES OF THE URINARY SYSTEM	27	3	1	3	1	2	4	8	5
Acute nephritis	4		1		1			1	1
Bright's disease	20	3		3		2	3	6	3
Hæmorrhage of bladder	1						1		
Inflammation of bladder, chronic	2							1	1
DISEASES OF THE GENERATIVE SYSTEM	5		1	1			1	1	1
Stricture of urethra, organic	2		1						1
Chronic inflammation of prostate gland	1						1		
Ulcer of penis	1			1					
Inflammation of the fallopian tubes	1							1	
DISEASES OF THE ORGANS OF LOCOMOTION	4		1	1	1				1
Necrosis	1			1					
Synovitis, acute	1								1
Caries and necrosis of spine	2		1		1				
DISEASES OF THE CONNECTIVE TISSUE	2	1			1				
Inflammation	1				1				
Abscess	1	1							
DISEASES OF THE SKIN	2		2						
Frostbite	1		1						
Ulcer	1		1						
Injuries	**15**	**1**	**1**	**2**		**2**	**1**	**4**	**4**
GENERAL INJURIES	3		1				1		1
Burns and scalds	1					1			
Effects of cold	1		1						
Multiple injury	1								1
LOCAL INJURIES	12	1		2		1	1	4	3
Fracture of the vault of the skull	2			1				1	
Concussion of brain	2	1						1	
Fracture of facial bones	2							2	
Perforating wound of chest	1					1			
Fracture of spine	1								1
Contusion of the abdomen	1						1		
Wound of upper extremity	1			1					
Wound of lower extremity	1								1
Dislocation of the femur at hip	1								1

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1895.

Operations.	Number of cases.	Remarks.
Total number of operations	**998**	
REMOVAL OF TUMORS	67	
For lipoma	11	
For wen	7	
For fibroma	5	
For osteo-fibroma	1	
For sarcoma	1	
For sarcoma of neck	1	Excision and drainage.
For sarcoma of testicle	4	Castration.
For sarcoma of thigh, cystic	1	Incised.
For carcinoma of tongue	1	Excision floor of mouth and part of tongue, preceded by ligation of right and left lingual arteries and tracheotomy; still in hospital.
For carcinoma of rectum	1	Excision.
For carcinoma of neck and pharynx	1	4 tumors removed from neck; death.
For carcinoma of pylorus	1	Gastro-enterostomy with Murphy bullen; death.
For epithelioma	2	
For epithelioma of penis	1	Amputation of penis.
For papilloma	2	Excised and cautery.
For papilloma of perineum	1	
For cyst	8	
For suppuration cyst sublingual gland	1	Incision and drainage.
For warts of penis	2	Circumcision.
For warts of anus	1	
For hæmatoma	5	Unsuccessful, 1.
For condyloma	5	
For chondroma	1	
For tubercle glands of neck	2	
For carbuncle	1	Incised and curetted.
REMOVAL OF FOREIGN BODIES	4	
For removal of bullet	2	
From æsophagus	1	
For fishbone from finger	1	
OPENING OF ABSCESSES	49	
For lumbar abscess	3	Death, 1.
For abscess of penis	1	
For abscess of periurethral	1	
For psoas abscess	1	
For abscess of testicle	1	
For abscess of antrum	1	Tapped by drilling; still in hospital.
For perineal abscess	4	
For ischio-rectal abscess	11	
For abscess of lip	1	
For abscess of foot	5	
For abscess of neck	2	
For abscess of ankle	1	Unsuccessful.
For abscess of groin	1	
For abscess of axilla	2	
For abscess of scrotum	1	
For abscess of hand	4	
For abscess of arm	2	
For abscess of alveola	1	Tooth and portion alveolar process removed.
For urinary abscess	2	
For abscess of liver	3	Aspiration, 1; resection eighth rib and incision of abscess; death, 2.
For abscess of hip	1	
OPERATIONS ON THE NERVES	3	
For sciatica	2	Nerves stretched, 1.
For compression median nerve	1	Nerve relieved from pressure.
OPERATIONS OF THE EAR	5	
For suppuration of middle ear and mastoid cells	2	Cells perforated with drill; death; autopsy revealed abscess of brain.
Do	1	Cells perforated; still in hospital.
For mastoditis	1	Cells perforated with drill.
For polypus of external meatus	1	Removal.
OPERATIONS ON THE EYE	18	
For pterygium	6	
For lenticular cataract	1	
For syphilitic iritis	1	Iridectomy.
For contusion of eye	1	Conjunctiva punctured.
For lachrymal fistula	1	Duct probed.

Table IX.—Surgical Operations, Fiscal Year 1895—Continued.

Operations.	Number of cases.	Remarks.
OPERATIONS ON THE EYE—Continued.		
For iritis	1	Iridectomy.
For glaucoma	1	Iridectomy; still in hospital.
For ptosis	1	Portion of lid removed and lower part brought up.
For strabismus	1	Internal rectus divided.
For lacerated wound of eyelid	1	Sutured.
For wound of cornea	1	Removal particles of steel.
For chalazion	1	Incision and curettage.
For cyst of orbit	1	Excised.
OPERATIONS ON THE NOSE	4	
For nasal polypus	3	Removed.
For epistaxis	1	Nose plugged.
OPERATIONS ON THE HEAD AND MOUTH	18	
For enlarged tonsils	1	Removal.
For elongated uvula	3	Excised.
For tonsilitis	2	Incision.
For cerebral hemorrhage	2	Trephined; death (cerebral abscess).
For post-pharyngeal abscess	1	Incised; death.
For scalp wound	3	Sutured.
For gunshot wound of face	1	Bullet removed.
For compression of brain from gunshot wound	2	Depressed bone removed.
For intense pain in left arm	1	Skull trephined over arm center.
For wound of face	1	Plastic operation.
For depressed fracture of skull	1	Trephined.
OPERATIONS ON THE ARTERIES	5	
For femoral aneurism	1	Digital compression.
For hemorrhage	2	
For popliteal aneurism	1	Ligation of femoral artery.
For division ulna artery	1	Ligation.
OPERATIONS ON THE VEINS	10	
For varix leg	8	Excision of veins; transfixion.
Do	2	Schade's operation.
OPERATIONS ON THE RESPIRATORY ORGANS	21	
For pleurisy with effusion	18	Paracentesis of pleura; unsuccessful, 1.
For empyema	3	Excision of ribs.
OPERATIONS ON THE THORAX	2	
For gunshot wound	2	Incision to enlarge sinus; portion of rib exsected.
OPERATIONS ON THE ORGANS OF DIGESTION	126	
For hernia, inguinal congenital	3	Radical cure; still in hospital, 1.
For hernia, inguinal	24	Radical cure in hospital, 1; death, 1; unsuccessful, 2.
For hernia, inguinal double	1	Radical cure.
For hernia, inguinal strangulated	3	Do.
For hernia, inguinal scrotal	4	Do.
For hernia, inguinal incomplete	3	Do.
For hernia, ventral	1	Sac removed.
For hernia, diaphragmatic strangulated	1	Gangrenous part of intestines resected; death.
For epiplocele	1	Ligation and excision.
For fistula in ano	37	Unsuccessful, 4; death, 1, patient had carcinoma of stomach.
For fissure of anus	2	Sphincter stretched; cautery.
For hemorrhoids	40	Ligated and excised; clamp and cautery, 16; Whitehead's operation, 1.
For stricture of rectum	4	Incised; death, 1.
For ulcer of rectum	1	Dilatation.
For femoral hernia	1	Radical cure.
OPERATIONS ON THE ABDOMEN AND PELVIS	30	
For ascites	16	Paracentesis.
For abscess abdominal wall	2	
For pelvic cellulitis	1	Incision.
For inflammation fallopian tubes	1	Ovariotomy; death.
For peritonitis	1	Laparotomy; death.
For suppurative peritonitis	1	Laparotomy.
For wound of abdomen (penetrating)	1	Portion of omentum excised.
For appendicitis	3	Incision and drainage; death, 1.
Do	1	Appendix removed.
For chronic endometritis	1	Dilatation cervix and curettage.
For gunshot wound	1	Abdominal section; unsuccessful.
For pyosalpinx	1	Laparotomy excision.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1895—Continued.

Operations.	Number of cases.	Remarks.
OPERATIONS ON THE LYMPHATIC ORGANS	152	
For suppuration of lymph glands:		
Groin	94	Removed, 69; incised, 25.
Neck	7	Removed.
Axilla	2	Do.
For inflammation of lymph glands:		
Groin	48	Removed, 34; incised and curetted, 14.
Axilla	1	Excision.
OPERATIONS ON THE URINARY ORGANS	118	
For organic stricture urethra	70	Internal urethrotomy; unsuccessful, 3; death, 1.
Do	30	Dilatation.
Do	7	External urethrotomy.
Do	4	Divulsed, 3; meatotomy, 1.
For urethral calculus	1	Removed.
For urinary fistula	3	Incised and curetted, 2; internal urethrotomy, 1.
For rupture of urethra	2	Perineal section.
For retention of urine	1	Aspiration of bladder.
OPERATIONS ON THE ORGANS OF GENERATION	162	
For phimosis	107	Prepuce slit, 14; circumcision, 93.
For raraphimosis	4	Prepuce slit.
For varicocele	7	
For hydrocele	13	Tapped and injected; unsuccessful, 2.
Do	9	Excision tunica vaginalis.
For tuberculosis epididymis	5	Castration.
For tuberculosis testicle	5	Do.
For orchitis	1	Incision.
For cyst of testicle	2	Castration.
For abscess of testicle	1	Do.
For redundant prepuce	3	Circumcision.
For fungus of testis	1	Castration.
For phagedæna of penis	1	Amputation of penis.
For retained testicle	1	Organ replaced in scrotum.
For ulcer of penis	2	Circumcision.
OPERATIONS ON BONES	47	
For fracture of inferior maxilla, compound (old)	1	Refractured and abscess opened.
For fracture of patella	4	Baker's operation (fragments wired); excision of knee joint, 1.
For fracture of internal malleolus	1	Portion of bone removed.
For fracture in the shoulder joint	1	Excision of joint.
For fracture of finger	1	Removal of bone.
For fracture of radius	1	Removal of comminuted bone.
For fracture of tibia	1	Fragments wired; still under treatment.
For multiple fracture of bones of face	1	Excision of bone.
For faulty union of fracture	3	Fragments wired.
For ununited fracture of humerus	1	Ends freshened and united by silver plates and screws; unsuccessful.
For ununited fracture of tibia	1	Drilled between ends of bones.
For ununited fracture of femur	1	Excision of old callus.
For badly united fracture of radius	2	Refracture radius.
For necrosis of jaw	3	Scraped.
For necrosis of ribs	3	Do.
For necrosis of spine	1	Vertebra scraped.
For necrosis of ilium	2	Bone scraped.
For necrosis of femur	1	Sequestrum removed.
For necrosis of tibia	2	Removal of dead bone; unsuccessful, 1.
For necrosis of phalanx	2	Removal of dead bone.
For necrosis of os calcis	1	Diseased bone removed.
For caries of bone	8	Bone removed, 4; scraped, 4; unsuccessful.
For caries of inferior maxilla	1	Portion of bone removed; fragments wired.
For caries of phalanx toe	1	Dead bone removed.
For osteomyelitis	2	Opened and cleaned; some anchylosis of joint.
For tuberculosis ilium	1	Abscess opened and cautery applied.
OPERATIONS ON THE JOINTS	49	
For dislocation first phalanx middle finger	1	Reduction.
For dislocation of hip	1	Do.
For dislocation semilunar cartilage knee joint	1	Do.
For dislocation dorsal cartilage	1	Removal of cartilage.
For dislocation of humerus	8	Reduction; unsuccessful.
For dislocation first phalanx big toe	1	Reduction.
For arthritis of knee	1	Opened and drained.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR, 1895—Continued.

Operations.	Number of cases.	Remarks.
OPERATIONS ON THE JOINTS—Continued.		
For ankylosis of shoulder	2	Forcible flexion.
For ankylosis of elbow	1	Forcible extension and flexion.
For ankylosis of knee	1	Forcible flexion.
For tuberculosis of elbow	1	Bone scraped.
For tuberculosis of hip joint	1	Joint aspirated; unsuccessful.
For tuberculosis of ankle	1	Excision of joint; death (tubercular meningitis).
For synovitis of elbow joint	1	Incision.
For synovitis of knee joint	26	Aspirated; 1 unsuccessful, aspirated and injected tincture iodine, 2.
For synovitis of phalangeal joint	1	Incision.
OPERATIONS ON TENDONS AND FASCIA	10	
For inflamed bursæ	2	Excision; incised and scraped.
For whitlow	6	Incision; unsuccessful, 1.
For contraction of fascia	1	
For fibrous ankylosis	1	Incision.
AMPUTATIONS	55	
Of fingers	23	
Of leg for compound comminuted fracture both bones.	2	At knee joint, lower third, 1.
Of leg for compound dislocation ankle joint	1	Lower third.
Of toe	8	
Of thumb	10	
Of leg above knee for osteosarcoma of tibia	1	Death.
Of leg, lower third, for caries of tarsus	2	
Of arm at shoulder for paralysis	1	
Of femur, middle third, for tubercle of knee joint	1	
Of femur, lower third, for compound comminuted fracture.	1	
Of phalanges of left foot for frostbite	1	
Of hand above wrist	1	
Of toe (Ainhum)	1	
Of forearm, middle third, for carcinoma of hand	1	
Reamputation of finger	1	
OPERATIONS ON THE SKIN AND CONNECTIVE TISSUE	43	
For ulcer of leg	18	Skin grafting, 15; curetted, .
For ulcer of foot	1	Curetted and cauterized.
For punctured wound of foot	2	Incised.
For tubercle skin of neck	1	Excision.
For inflammation connective tissue	1	Incision.
For onychia	1	Nail removed.
For in-grown toe nail	2	Do.
For suppuration connective tissue	2	Curetted; unsuccessful.
For elephantiasis penis	1	Partial excision of penis.
For furuncle	2	Incised.
For poisoned wound of hand	8	Incised; death, 1.
For fistula of neck	1	Sinis enlarged.
For ulcer of hand	1	Skin grafting.
For cellulitis of hand	1	Incised.
For phagedena of groin	1	Curetted.

TABLE X.—RATIO OF DEATHS FROM SPECIFIC CAUSES.

Deaths from—	Per 100 from all causes.	Deaths from—	Per 100 from all causes.
General diseases	43.94	Diseases of the digestive system	10.53
Diseases of the nervous system	4.81	Diseases of the urinary system	6.17
Diseases of the circulatory system	10.76	Injuries	3.43
Diseases of the respiratory system	16.24	From all other causes	4.12

TABLE XI.—RATIO OF DEATHS IN EACH DISTRICT.

Districts.	Per 100 patients treated in hospital.	Districts.	Per 100 patients treated in hospital.
North Atlantic	3.13	The Mississippi	2.53
Middle Atlantic	4.57	The Great Lakes	2.49
South Atlantic	3.57	The Pacific	4.37
The Gulf	2.98	The quarantine stations	0.00
The Ohio	3.04		

TABLE XII.—COMPARATIVE EXHIBIT—MORTALITY PER 100 PATIENTS TREATED IN HOSPITAL, BY DISTRICTS, 1886–1895.

Districts.	General average.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.
North Atlantic	2.86	3.09	3.04	3.53	3.25	2.65	2.50	2.62	2.46	2.36	3.09
Middle Atlantic	4.11	3.27	4.85	4.80	3.92	4.66	3.77	3.44	3.69	4.17	4.56
South Atlantic	3.30	3.54	3.53	2.54	3.55	3.64	2.56	2.71	3.37	4.00	3.56
The Gulf	3.22	2.96	3.82	2.78	3.08	3.40	3.88	3.63	3.29	2.38	2.98
The Ohio	2.67	3.05	3.06	2.01	3.52	2.26	2.54	1.53	3.01	2.51	3.23
The Mississippi	3.55	2.79	4.19	4.78	3.52	3.04	3.67	3.37	3.64	3.99	2.53
The Great Lakes	2.79	2.37	2.72	2.83	2.93	2.63	2.44	4.11	2.76	2.61	2.54
The Pacific	4.35	5.72	4.59	4.45	4.22	4.42	4.43	3.83	3.73	3.76	4.38

TABLE XIII.—COMPARATIVE EXHIBIT—RATIO OF DEATHS FROM SPECIFIC CAUSES 1886–1895.

Deaths from—	General average.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.
General diseases	47.17	48.40	45.63	46.58	45.47	50.20	52.66	43.42	47.70	47.70	43.94
Diseases of the—											
Nervous system	5.12	4.91	4.79	6.84	5.69	4.06	3.69	6.05	4.81	5.58	4.81
Circulatory system	8.46	9.09	7.29	10.04	7.58	5.81	9.84	9.60	8.99	5.58	10.76
Respiratory system	16.21	16.22	17.50	14.96	17.26	19.10	15.16	15.85	13.38	16.51	16.24
Digestive system	7.58	7.37	7.08	8.97	7.37	6.30	5.33	7.30	7.11	8.48	10.53
Urinary system	5.26	4.18	6.25	5.34	4.63	4.67	4.71	4.80	6.48	5.35	6.17
Injuries	6.29	5.41	7.92	4.50	8.00	5.81	5.33	7.72	8.99	5.58	3.43
From all other causes	3.91	4.42	3.54	2.77	4.00	3.65	3.28	5.26	2.54	5.57	4.12

TABLE XIV.—COMPARATIVE EXHIBIT—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT, 1886–1895.

Districts.	General average.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.
North Atlantic	27.15	26.56	23.89	26.76	30.05	29.21	29.68	24.37	24.12	26.14	29.97
Middle Atlantic	27.41	25.84	29.21	26.99	26.92	26.32	26.81	26.87	26.29	24.60	34.21
South Atlantic	27.84	26.72	27.99	26.53	27.91	28.27	26.19	26.26	29.23	29.48	29.80
The Gulf	22.12	19.43	20.82	23.24	24.55	23.21	21.07	21.97	22.33	22.13	22.46
The Ohio	23.32	23.61	21.87	21.62	22.52	24.52	24.92	23.81	23.37	22.80	25.18
The Mississippi	21.46	20.79	21.72	21.23	22.60	20.88	22.61	20.59	19.84	21.51	22.92
The Great Lakes	28.08	28.61	26.31	26.72	29.69	30.82	27.09	27.82	27.07	28.32	28.34
The Pacific	34.83	29.74	29.72	29.96	31.12	33.68	32.68	36.92	40.27	43.57	40.66
The quarantine stations	19.97	......	......	......	......	......	......	......	......	......	19.97

TABLE XV.—NATIVITIES OF PATIENTS TREATED IN UNITED STATES MARINE HOSPITAL DURING THE PAST FISCAL YEAR.

Countries.	Number.	Countries.	Number.
Total	12,092	Ireland	657
		Italy	75
Africa	16	Japan	12
Austria	114	Mexico	11
Australia	15	New Zealand	7
Azores Islands	5	Norway	264
Belgium	10	Philippine Islands	4
Brazil	13	Poland	17
Canada	343	Portugal	130
Cape de Verde	27	Prince Edward Island	8
Chile	20	Russia	193
China	6	Scotland	202
Denmark	118	Scandinavia	5
England	607	Spain	33
Fayal	3	Sweden	274
Finland	200	Switzerland	20
France	50	United States of America	7,952
Germany	488	United States of Colombia	7
Greece	20	West Indies	120
Heligoland	3	Unknown	28
Hungary	15		

PUBLIC HEALTH SERVICE.

PUBLIC HEALTH SERVICE.

RÉSUMÉ OF OPERATIONS.

Although the year has passed without any notable invasion of epidemic disease from foreign lands, the quarantine season just closed has been one of considerable anxiety, necessitating, by reason of the dangers threatened, close watchfulness on the part of the Bureau, and certain special measures involving much labor. Early in the season the certain increase of yellow fever in Cuba on account of the insurrection, and the possibility of its extension to the neighboring islands having trade relations with the United States, gave rise to a feeling of insecurity. Cuba, by reason of its close proximity and the constant infection of its principal port, Havana, with yellow fever, is a source of continued anxiety on the part of health officers of the South Atlantic and Gulf coasts between May and November, and this year the danger was materially increased.

In addition to the three sanitary inspectors regularly stationed during the quarantine season at Havana and Santiago, special inspectors were appointed to visit all the ports of Cuba to make report on the prevalence of yellow fever and any special danger of its being transmitted to the United States. In view of the insurrection, also, and the fact that surreptitious communication between the island and the neighboring coast of Florida would undoubtedly be attempted, it was determined that the whole of the Florida coast should be patrolled by four revenue cutters, each carrying a sanitary inspector of the Marine-Hospital Service, and each provided with a launch to enable the inspector to search the inlets and shallow waters which the revenue cutters would not be able to enter.

This service was imposed on the cutters in connection with their regular duty of enforcing the neutrality navigation and customs laws, and they were instructed by yourself to be especially vigilant with regard to the small fishing smacks which sail from the port of Havana without a bill of health, and which, under the guise of fishing in Florida waters, engage in smuggling. It is believed these measures had a deterring effect upon this dangerous and illegal communication.

In the meantime a suspicious fever was reported in Tampa, which city harbors a large number of Cuban refugees and patriots. Great care was necessary to make the necessary inspection of Tampa and determine the nature of the fever without exciting alarm and inflicting consequent damage upon the commerce of the port. Sanitary Inspector Guitéras was assigned to this duty, and his first reports were of such a character that the Bureau was confronted with the possibility of receiving word at any time of the infectious character of the fever and the necessity of making all preparations for combating it. Accordingly the portable sulphur fumigator and the portable steam disinfecting chamber were shipped from Washington, where they had been stored, to an available point in the South, and the preparation of a movable detention camp was begun at Waynesville, Ga., where is stored the camp equipage of the detention camp used during the epidemic of yellow fever in Brunswick in 1893. A movable detention camp for the accommodation of 1,000 persons was prepared under the direction of an officer of the Service. This camp, which is now ready to be moved at any time, will require about fifty cars for its transportation. It consists of tents and flies, tent frames and floors, cots, mattresses, ranges, cooking utensils, and other accessories, including a steam boiler for supplying hot water for cooking and laundry purposes. A sketch plan of the camp and specifications for a number of wooden buildings to be quickly erected were also prepared.

Though fortunately the fever at Tampa proved to be malarial, these preparations were not only necessary at the time but were considered advisable, in order that in succeeding years the Bureau might have a camp of this character ready to be established at any point with short notice. Further particulars concerning this movable camp will be found in the chapter on yellow fever.

While these preparations were in progress, on account of the prevalence of smallpox in a large number of localities in the Western and Southern cities the Bureau was called upon to aid in its suppression in a number of localities, notably, Staunton, Va., and New Orleans, La., and began a systematic vaccination of the crews of all vessels on the Mississippi and Ohio rivers.

In September information was received of the return from Mexico of some 400 negro colonists, a large number of whom were afflicted with smallpox. These colonists were corralled at the Texas border (Eagle Pass) by the State quarantine officers, and an officer of the Marine-Hospital Service was immediately detailed to see that the regulations of the Treasury Department were duly enforced. It soon became evident that the State health authorities were unable to meet the demands of the situation, and the Marine-Hospital Service assumed charge. A camp was formed near Eagle Pass, tents and camp equipage furnished, the colonists divided into groups, additional medical attendance provided, nurses and guards employed, and all sanitary measures taken to prevent the further spread of the disease among the colonists, and to prevent its extension beyond the cordon lines.

Four hundred and eleven refugees were received in the camp, of which number 178 had smallpox, there being 51 deaths from this disease. The camp was closed October 21, the disease having been kept confined entirely within the established limits. A full report concerning this camp will be found in the chapter on smallpox.

In August public alarm was felt on account of the widespread prevalence of cholera throughout China and Japan, and the appearance of the disease at Honolulu. Special regulations were issued to the officers upon the Pacific Coast, sanitary inspectors were appointed to assist the United States consuls at Yokohama and Honolulu, and the quarantine force increased at the national quarantine station, Angel Island, San Francisco Bay. Previous inspections had been made during the summer in accordance with Treasury Regulations of all quarantine ports on the Pacific Coast, and all deficiencies rectified, so that when the reports concerning cholera were received the Bureau was able to give assurance that all necessary precautions had been taken. No case of cholera has appeared in the United States.

The details of the above-mentioned operations, and an enumeration of other efforts of the Marine-Hospital Service in behalf of the public health and its relations thereto, are stated in the succeeding pages, under the following heads:

1. National quarantine stations.
2. Sanitary inspection service.
3. Division of sanitary reports and statistics.
4. The Hygienic Laboratory.
5. Epidemic diseases.
    - *a.* Cholera.
    - *b.* Yellow fever.
    - *c.* Smallpox.
6. The national quarantine law.

NATIONAL QUARANTINE STATIONS.

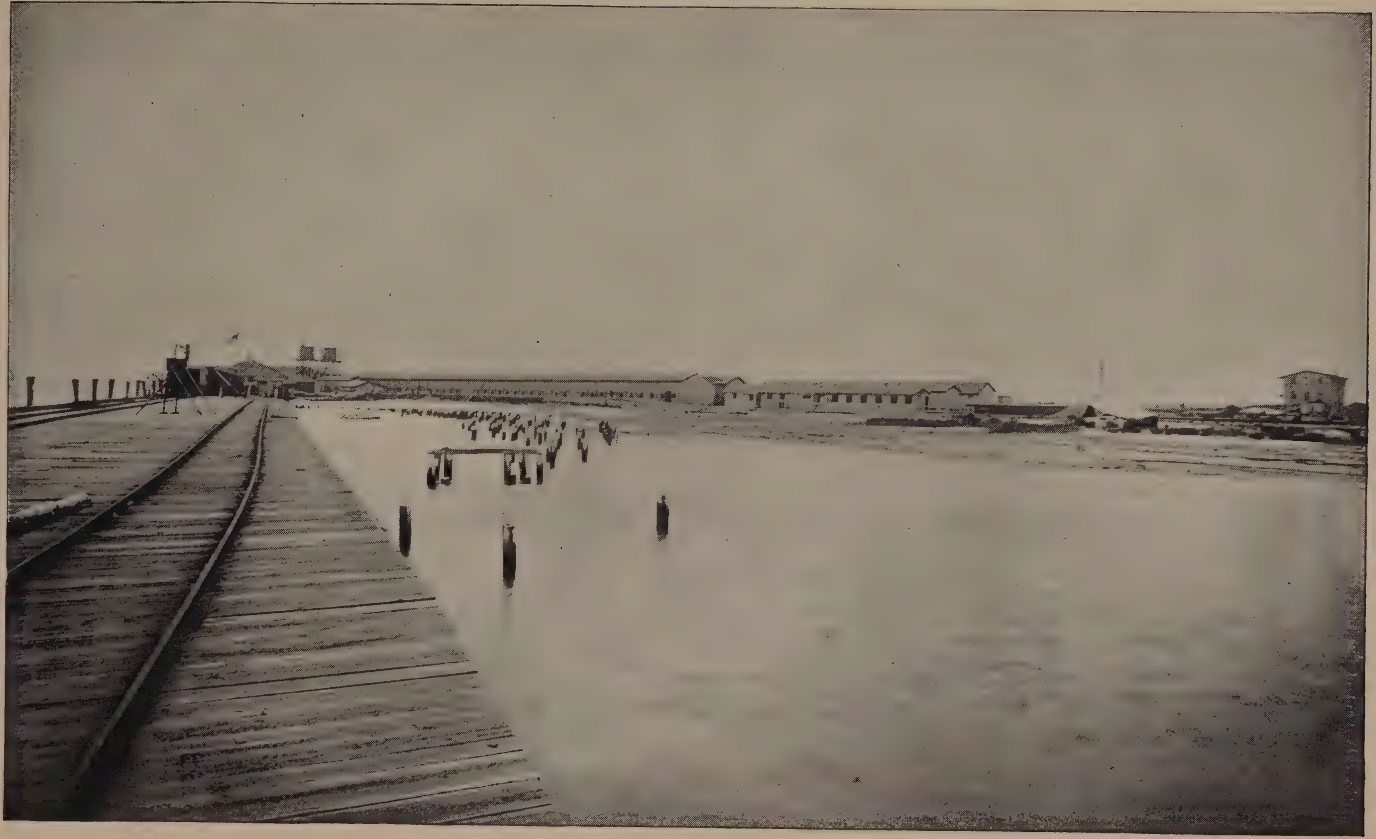
Following are reports in detail of the national quarantine stations for the fiscal year ending June 30, 1895. These stations, 12 in number, are named and located as follows: Camp Low Quarantine, Sandy Hook, New Jersey; Delaware Breakwater Quarantine, near Cape Henlopen, at the entrance of Delaware Bay; Reedy Island Quarantine, near Port Penn, Del., about 45 miles from Philadelphia and 50 miles from the mouth of the bay; Cape Charles Quarantine, the boarding station near Old Point Comfort, Va.; detention barracks, hospitals, and disinfecting plant on Fishermans Island, off Cape Charles, Va.; Southport Quarantine, near Southport, Cape Fear River, North Carolina; South Atlantic Quarantine, Blackbeard Island, Sapelo Sound, Georgia; Brunswick Quarantine, Brunswick, Ga.; Key West Quarantine, Dry Tortugas, Florida; Gulf Quarantine, Ship Island, Mississippi; San Diego Quarantine, San Diego, Cal.; San Francisco Quarantine, Angel Island, San Francisco Bay, California; Port Townsend Quarantine, boarding station at Port Townsend; barracks, hospital, disinfecting plant at Diamond Point, Washington.

CAMP LOW QUARANTINE, SANDY HOOK, NEW JERSEY.

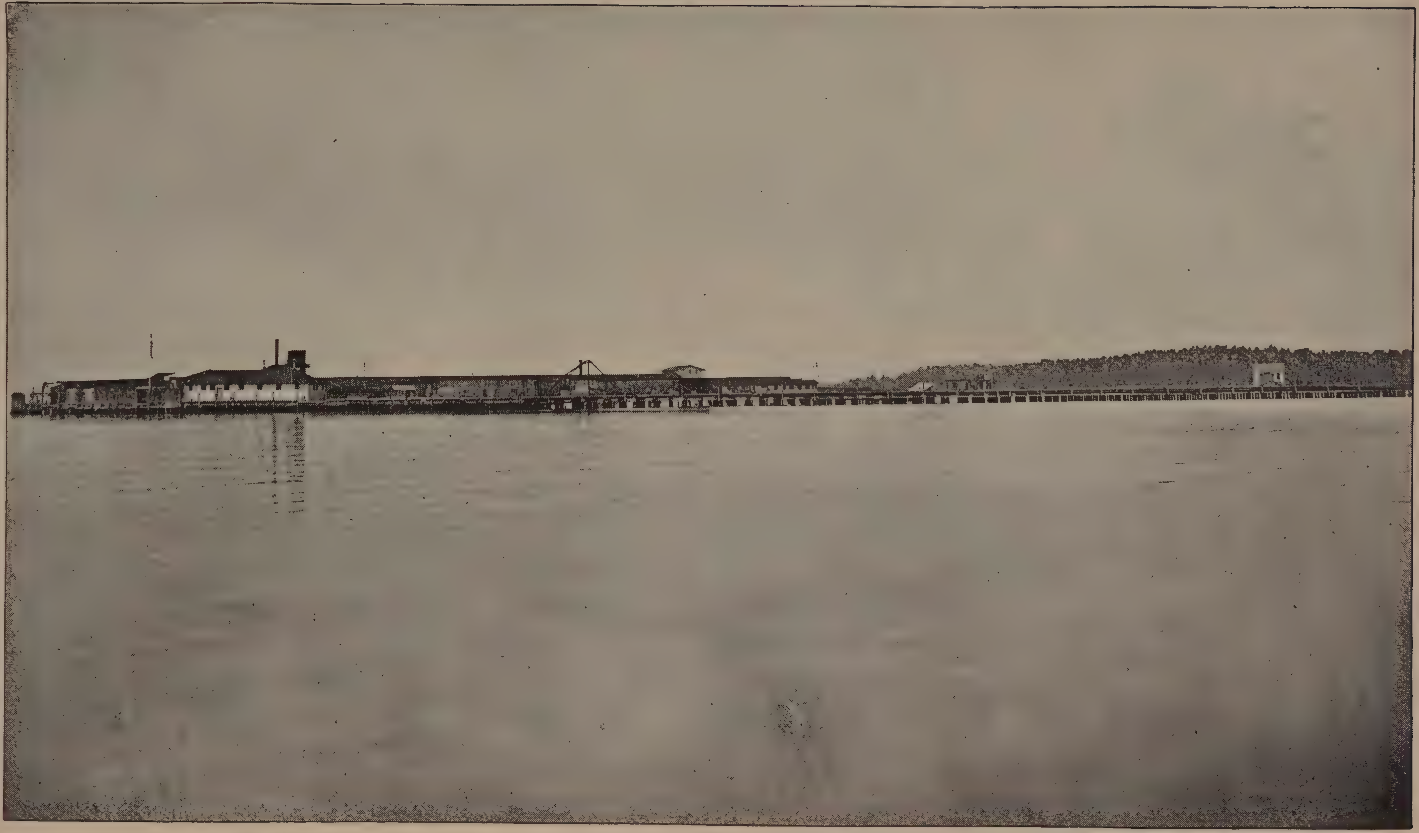
The operations of the quarantine service at Camp Low during the fiscal year ending June 30, 1895, were confined, as last year, to the care and preservation of the buildings and contents. The equipment and personnel remain the same. Subsequent to June 30, however, the steward was ordered to other duty and two of the attendants discharged, leaving the station in charge of the keeper. Many of the articles stored there were sent to Fishermans Island (Cape Charles Quarantine) for equipment of the barracks, and to the detention camp at Waynesville, Ga. The naphtha launch was transferred to the new quarantine station at Southport, N. C. The station is still in condition to be used at any time should it be necessary, and a full description of this establishment may be found in the annual reports of 1892 and 1893.

DELAWARE BREAKWATER QUARANTINE; POST-OFFICE ADDRESS, LEWES, DEL.

A description of this station will be found in the annual reports of 1892 and 1893. The following is a detailed report of the station by the medical officer in command. P. A. Surg. W. T. Bratton was in com-



CAMP LOW, SANDY HOOK, NEW JERSEY. (VIEW 1.)



CAMP LOW, SANDY HOOK, NEW JERSEY. (VIEW 2.)

mand during the early part of the fiscal year, but P. A. Surg. C. P. Wertenbaker assumed command of the station August 27. The following estimates have been prepared for this station for the ensuing fiscal year:

Barracks for cabin passengers	$4,000
New boathouse	75
Lavatories to barracks, and cutting kitchen sink to sewer	600
Improvement to grounds, grading, planting trees, etc.	500
Total	5,175

REPORT OF THE WORKINGS OF THE DELAWARE BREAKWATER QUARANTINE STATION FOR THE FISCAL YEAR ENDING JUNE 30, 1895.

By P. A. Surg. C. P WERTENBAKER.

Vessels disinfected, none. (All vessels arriving at this station requiring disinfection are sent to Reedy Island Quarantine.) Vessels detained for observation, 7; vessels inspected and passed, 308; vessels spoken and passed, 6. One case of smallpox was treated on the station during the year; period of detention, six weeks; result, recovery.

The Delaware Breakwater Quarantine Station is situated on Cape Henlopen, about 1 mile from the point of the cape. At this point the cape is about 1 mile wide, having the Atlantic Ocean to the east and Delaware Bay to the west. The station lies on the bay shore; the Delaware Breakwater, which forms the harbor at this place, being about a mile from the station out in the bay. The soil is sandy and has been raised in dunes by the winds. A coarse grass grows in spots and there are a few stunted pines scattered over the reservation. The station is isolated, being 3 miles from the village of Lewes, Del., which is the post-office and telegraphic address. The method of communication is by telephone. Each day a road wagon is sent in for the mail and supplies. The roads are sandy and hauling over them heavy.

The reservation is 400 yards square and contains the executive building, a large, roomy brick house, comfortably furnished; in this building are the offices and surgeon's quarters. A stable, barn, and cowshed are near by. About 75 yards from the executive building runs the fence around the quarantine inclosure. This inclosure is 300 yards square and is surrounded by a close picket fence, 8 feet high. Within the inclosure are barracks, one story high, capable of containing 800 immigrants, 400 of each sex. The male and female barracks are so placed as to form two sides of a quadrangle; between them, in the angle thus formed, is the dining room, capable of seating 200 persons. Adjoining this is a most complete kitchen, and still farther back are storerooms filled with stores and household goods. There is kept on the station at all times sufficient provision to feed 500 people for 7 days. A complete bath house, capable of bathing 200 persons per hour, is to the east of the female barracks, and just opposite to it is the boiler house and laundry. In this house is the steam disinfecting chamber for sterilizing wearing apparel, bedding, etc.

In the northwest corner of the inclosure is the contagious-disease camp, consisting of tents supported by framework, containing one male and one female ward, a kitchen, a dining room, storeroom, sleeping quarters for nurses, cooks, attendants, medical officer, etc. This camp is complete, having its own water supply, does its own cooking, etc. Food is brought to the gate and deposited, whence it is taken by the attendants of the camp.

No communication is allowed between the camp and the rest of the inclosure. Some 25 yards south of this camp is the suspect hospital, consisting of a single story wooden building containing a ward and nurses' rooms. This hospital is used for doubtful cases in which it has not been determined whether they have a contagious disease or not. When the nature of the disease is determined the patient is transferred to the contagious-disease camp or to the noncontagious-disease hospital, according to the nature of the case.

About 100 yards south of the suspect hospital is the noncontagious-disease hospital. This is a two-story building of wood, and contains a ward capable of holding 20 beds, a dispensary, a kitchen, attendants' quarters, and steward's quarters. There are numerous outhouses for fuel, etc. Each barrack has latrines with compartments for 20 persons. The discharges are caught in special galvanized iron buckets, disinfected, then carted away in a cart kept for that purpose alone and buried in lime in remote sand hills.

The station has only one medical officer, usually a passed assistant surgeon, in command, one acting hospital steward, and eight attendants, six of whom belong to the quarantine division and two to the marine hospital division, the latter being cook and nurse and night watchman. The quarantine division contains an engineer, a coxswain, and three men in crew, and one general-utility man. The force on the station is too small to accomplish much work, as the crew have to be out in the boarding boat constantly, and the other attendants have their hands full, so that work of repairs and improvement has to be done in the intervals of boarding vessels.

Additions and improvements.—Much has been done during the year in the way of grading the grounds, repairs, etc. A portion of the reservation at the site of the contagious-disease camp having been washed away by high water during a gale, it became necessary to protect the soft sand from further encroachments of the sea. To accomplish this end, a line of piling placed side by side and held in place by stringers, was run for a distance of 150 yards along the water front. Not only has this protected the bank from further encroachments of the water, but the hollow has rapidly filled in with sand, thus justifying the predictions of Passed Assistant Surgeon Bratton, to whose foresight we are indebted for this method of protection. The cost was $562.50, or $1.25 per running foot, and as a cheap and effective method of protection deserves special notice.

A boathouse to shelter the boarding boat was erected at a cost of $100. A cow for the use of the station was purchased at a cost of $50 and a cow shed erected, cost $30. A horse, Dayton wagon, with harness, etc., purchased at $190. Two dump carts, cost $80. The old boathouse on the beach was moved to the rear of the executive building and converted into a stable and carriage house at a cost of $20. Seventeen thousand three hundred linear feet of rough lumber, costing $492.85, having been furnished the station, there have been made by the attendants on the station, without extra cost, a landing pier for the boarding boat, and a walk from same to executive building, a new walk around executive building, and a new walk from executive building to the quarantine inclosure and another to the stable; new walks laid within the inclosure and around the noncontagious hospital; repairs to suspect hospital, including new steps and porches. New sewers were laid from the executive building to low water and from contagious-disease camp, at a cost of about $100; 300 feet of picket fence, 8 feet high, was put around the noncontagious-disease hospital to enable it to be used temporarily as a marine hospital, at a cost of $165. Fire hose has been provided for barracks, at a cost of $78. Stoves have been provided for tents and kitchen in contagious-disease camp. In November last about 100 cuttings of willow and cottonwood were planted in the sand as an experiment. They have nearly all lived and are branching out, and in a few years the station will have a number of fine shade trees on it.

On the 1st of November, 1895, the services of the acting assistant surgeon at this point were dispensed with, and the boarding of vessels from the station was commenced. A large whaleboat, manned by four oarsmen, was put in commission, and the boarding done by the commanding officer. This change was not only productive of great saving of money, but was also more satisfactory to the shipping people.

On the same date (November 1, 1895) the relief station of the Marine-Hospital

Service at Lewes, Del., was discontinued and the Delaware Breakwater Marine Hospital established, the medical officer in command of the quarantine also acting in the same capacity for the marine hospital. The results of the change have been very satisfactory. There have been numerous repairs to buildings, boarding boat, etc., all done by the attendants on the station at but small cost, and that only for materials. A number of tents with poles and fixtures have been received to be used in case of emergency. A portable forge, drill press, tools, etc., have been purchased for the purpose of making repairs, etc. The total cost of additions and repairs during the year was $2,396.69. A new naphtha launch is now being constructed for the use of the station, to be used as a boarding boat, and will soon be in commission.

The relations of this station with the local and State boards of health are gratifying. We are working in harmony. Our relations with the Philadelphia Maritime Exchange are particularly cordial, and enables us to be of mutual assistance. With masters of vessels, pilots, and other shipping people we have had almost no friction, and quarantine restrictions have been made as little burdensome as was consistent with strict sanitary precautions.

The continued presence near the station of two fish-oil factories is still a menace to the public health and seriously detrimental to an effective quarantine on account of the swarms of enormous green flies that they either breed or attract. Legal measures have been instituted to abate them, but as yet with no avail.

The vessels arriving at this port usually have their papers in good shape. In only two instances have vessels arrived without proper bills of health. The cargoes usually consist of sugar, the West Indies and the Philippine Islands furnishing the bulk of it. One cargo of sugar arrived during the year from Alexandria, Egypt, being the second cargo of the kind ever shipped from Egypt to the United States. One vessel brought a cargo of fiber from Cebu, Philippine Islands. This fiber is made from the stalk of a plant of the banana species. The stalk is crushed and then combed, leaving a fiber that looks much like strands of hemp. It is quite strong, and is used to make rope. This was the first cargo of the kind ever brought to the United States, so I am informed. Two vessels arrived at the station during the year from the Philippine Islands having beriberi aboard. In the first were 7 cases, and in the second 4 cases. They all recovered. From all that could be learned the indications seem to point to beriberi being a water-bourn disease, attacking persons who have been deprived of fresh vegetables or who were otherwise debilitated.

Vessels arriving at this station are usually here for orders. Other vessels to be inspected are those having a quarantinable disease on board, and certain fruit vessels authorized to be inspected here to enable them to reach their port of destination with as little delay as possible.

Recommendations.—The present system of furnaces for heating the surgeon's quarters is totally inadequate and should be replaced by steam heat at once. The barracks and kitchen for steerage passengers should be shingled. They were originally covered with tarred paper, which has proved a failure, the tar having melted and run off during the summer, hence the roof leaks badly. There should be a lavatory attached to each compartment of the barracks, there being 12 in all. At present the only method for washing is by tin basins placed on a bench outside the barracks.

There should be, in addition to the present water supply, one large under-ground cistern, capable of holding 10,000 gallons; or two smaller elevated cisterns of 5,000 gallons each, to properly supply the requisite amount of water in case the barracks should be filled with steerage passengers.

The damage done to the site of the contagious-disease camp has not been repaired, though the attendants are working on it whenever they can be spared from other work. But there is a large amount of filling yet to be done. When this is finished 300 feet of fence will be needed to fill in the gap in the general inclosure fence, and 300 feet more to inclose the contagious-disease camp; 6 push carts to be used in transporting infected clothing to the disinfecting chamber, and 1 to carry the sterilized clothes to the barracks; the other 4 to be used for transportation of supplies in the quarantine inclosure. One good, stout mule is needed for general work. The amount of grading, hauling of sand, latrine cans, etc., and similar work, makes the use of another draft animal imperative. The extent of the reservation and the number of frame buildings on it necessitate constant minor repairs. There should be kept at the station for the purpose of making these repairs about 15,000 feet of rough yellow-pine lumber. The repairs could be made by the attendants and a great saving of money effected.

One of the most essential needs of the station to make it competent to serve its purpose as a detention station for all class of passengers is a barracks for cabin passengers. A suitable frame building, two stories high, could be erected at small cost. At present cabin passengers would have to be cared for in tents.

This station is probably as well equipped as any quarantine station in the country, and for a small amount of money could be entirely capable of meeting any demand that is likely to be made on it.

BOARDING LAUNCH FOR DELAWARE BREAKWATER QUARANTINE.

DELAWARE BREAKWATER QUARANTINE STATION, DELAWARE,
August 14, 1895.

SIR: I have the honor to inform you that the naphtha launch built by the Gas Engine and Power Company, of New York, for this station, arrived here at noon yesterday (13th). I went up the river to Reedy Island the night of the 12th, met the launch there and started for the breakwater at 5.30 a. m., and arrived at noon, making the trip in six and one-half hours. The launch is the most perfect of its kind that I have ever seen, and as far as I can tell is admirably suited for the work at this station. She is a beautiful model, 38 feet in length, and is very speedy; she maintains a speed of 10 miles an hour without trouble. She looks to be a wonderfully seaworthy boat and I feel that she will be equal to any work that may be required of her. The Gas Engine and Power Company may well be proud of her. She rolls very little in a seaway, and when she is ballasted will be very steady. The cork-filled fender, running entirely around the sides, is a great success and enables her to run alongside of a vessel without danger. Every one who has seen it has commented favorably on it. It rather adds to the appearance of the launch. She is nicely fitted with lockers and can be used for several days' cruise. The small boat to be used as a tender looks as though she might belong to a yacht. The launch has been named the *Spray*, by order of the Bureau, her name appearing only on the stern, "U. S. Quarantine" being on each side of the bow. With this launch I feel that we have added greatly to the efficiency of the station. She will live in any weather that an ordinary tugboat could live in, and as she can carry from 40 to 50 persons can be used in transferring passengers to the shore. The station is to be congratulated on securing such a boat.

Respectfully, yours,
C. P. WERTENBAKER,
Passed Assistant Surgeon M. H. S., in Command.

The SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

FISH-OIL FACTORIES NEAR DELAWARE BREAKWATER QUARANTINE.

Regarding the fish-oil factories referred to in the above report of Dr. Wertenbaker, and to which reference was made in the annual report of 1894, it may be stated that after failure of the State board of health to abate this nuisance a preliminary injunction was applied for by the United States district attorney at Wilmington, Del., which was denied on technical grounds. An effort was then made to have the piers belonging to the factories removed on the ground of their having been erected without a permit from the War Department, and a letter was addressed to the honorable Secretary of War inquiring whether the piers in question had been erected contrary to law and whether their removal might be demanded by the War Department. A reply in the negative was received. The United States district attorney at Wilmington is, however, at the present writing engaged in preparing affidavits and taking other measures to have these factories removed.

INSPECTION OF VESSELS AT DELAWARE BREAKWATER.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., September 12, 1895.

SIR: In reply to your letter of the 10th instant, relative to the inspection of vessels at Delaware Breakwater, you are respectfully informed that several days ago Passed Assistant Surgeon Wertenbaker was directed to inspect such vessels as arrive at Delaware Breakwater in time for inspection there, but which would arrive too late for inspection at Reedy Island.

Respectfully, yours,

WALTER WYMAN,
Surgeon-General, M. H. S.

GEORGE E. EARNSHAW, Esq.,
Secretary, Earn-Line Steamship Company, Philadelphia, Pa.

QUARANTINE INSPECTION, DELAWARE BREAKWATER, OF VESSELS CALLING FOR ORDERS ONLY.

TREASURY DEPARTMENT, *June 14, 1894.*

Medical Officer in Command Delaware Breakwater Quarantine Station.
(Via Lewes, Del.)

SIR: Referring to your letter of June 10, addressed to the Supervising Surgeon-General of the Marine-Hospital Service, concerning the arrival of vessels near the breakwater for orders, and without entering at the custom-house, you are hereby authorized to make a quarantine inspection of all such vessels when from foreign ports. If quarantinable diseases should be found aboard of any such vessel or the vessel be deemed infected the usual quarantine measures should be taken as prescribed by the Regulations.

Respectfully, yours,

W. E. CURTIS,
Acting Secretary.

THE STATE QUARANTINE STATION FOR PHILADELPHIA SUPERSEDED BY THE NATIONAL QUARANTINE SERVICE.

In connection with the subject of national quarantine on the Delaware Bay and River, attention is invited to my last annual report (1894), in which will be found a detailed account of the causes leading to its establishment. The old lazaretto, used as a quarantine by the city of Philadelphia, by reason of the encroachments of urban growth had become manifestly an unsafe location for the reception of infected vessels or persons infected with epidemic disease. Accordingly, the law hereafter quoted was passed by the legislature of Pennsylvania and approved by the governor, and the following letter was received from the secretary of the State quarantine board:

STATE QUARANTINE BOARD,
Philadelphia, Pa., August 9, 1895.

SIR: It is my duty to inform you that on the 1st day of July of the present year his excellency the governor of this State approved a law which renders the State quarantine station simply one of inspection and observation; providing that there shall be no disinfecting apparatus maintained or used at said station or on the quarantine boat; that neither said station or boat shall be used at any time for the disinfection of vessels or their cargoes or for the detention or medical treatment of the cargoes, passengers, or baggage upon such vessels; and further, that it shall be the duty of the quarantine physician or his deputies to order any vessel, which in his judgment should in the interest of the public welfare be subject to disinfection or detention, to report to the Federal quarantine station for such further detention or treatment as may be necessary, as is provided by existing law.

In view of these changes I beg respectfully to call your attention to the importance of placing the Federal quarantine station at the mouth of the Delaware Bay in a state of complete preparation, not only with regard to the prevention of the introduction of infection into this port and State by way of the Delaware River but with regard to the comfort of any number of suspects whom it may be necessary to detain.

Anticipating the possible passage of this law, I visited Washington early in the present summer in order to have a personal conversation with yourself upon the subject, and in your absence was assured by your representative that this matter would be called to your attention. Inclosed please find a copy of the law.

I have the honor to be, yours, respectfully,

BENJ'N LEE, *Secretary.*

DR. WALTER WYMAN,
Supervising Surgeon-General, M. H. S., Washington, D. C.

(*Enclosure.*)

AN ACT to authorize the establishment of a quarantine inspection station by the Commonwealth defining the powers and duties of the State officials at such station, and authorizing the continuance of the present State quarantine station until October first, anno Domini one thousand eight hundred and ninety-five.

SECTION 1. *Be it enacted, &c.,* That whenever the State quarantine station shall be closed, or whenever the governor shall, under the provisions of the existing laws of this Commonwealth, suspend the operation of the State quarantine, the governor shall be, and hereby is, empowered to acquire by purchase or lease, in the name of the Commonwealth, land at any convenient place, either within or outside of this Commonwealth, and to erect thereon the necessary buildings, wharves, and piers for the purpose of a quarantine inspection station as hereinafter defined. If said station shall be established within the corporate limits of any incorporated city or borough, said station and all persons employed in or about it shall be, at all times, subject to the regulation and control of the proper authorities of such city or borough in the same manner as other buildings and persons within such city or borough are. Nothing in this act contained shall modify or limit, in any respect, the authority of the governor under existing laws to re-establish and maintain a complete State quarantine service whenever the public welfare shall so require.

SEC. 2. Whenever a quarantine inspection station shall be established as provided in the first section of this act it shall be maintained and used exclusively as a station from which to board and inspect vessels, and for this purpose there shall be maintained at said station a suitable pier for the quarantine boat and such buildings as may be necessary for the residence or sleeping accommodation of employes and physicians and the storing of necessary supplies. No disinfecting apparatus shall be maintained or used at said station or on the quarantine boat. Neither said station or boat shall be used at any time for the disinfection of vessels or their cargoes, or for the detention or medical treatment of the crews, passengers, or baggage upon such vessels; no vessel coming from any port or place outside of this Commonwealth shall be permitted to stop at such station, nor shall any person or any of the baggage, cargo, or any other article upon any such vessel be suffered to land or be discharged at such station. Any person violating any of the provisions of this act shall be guilty of a misdemeanor and on conviction shall be sentenced to pay a fine not exceeding one thousand dollars, and be imprisoned not exceeding one year, either or both, at the discretion of the court.

SEC. 3. When a quarantine inspection station shall be established as provided by this act the powers and duties of all persons connected with the State quarantine service shall remain the same as they now by law are, except as they are altered or modified by this act, and whenever, in the judgment of the quarantine physician or his deputy, the public welfare shall demand the disinfection or detention of any vessel bound to any port or place within this Commonwealth, he shall have power and it shall be his duty to order such vessel to report to the Federal quarantine station for such further detention or treatment as may be necessary, as is provided by existing law, or may forbid vessels from entering any port in this Commonwealth until the regulations of the State quarantine board shall have been complied with.

SEC. 4. Nothing in this act contained shall limit or annul the authority of the governor to continue and maintain a State quarantine service and station under existing law, nor shall this act be construed to require the establishment of the inspection station authorized by this act during the continuance of said quarantine service, and until the first day of October, one thousand eight hundred and ninety-five, and no longer, it shall be lawful to continue and maintain the present quarantine station or the inspection station authorized by this act at Lazaretto, Tinicum Township, Delaware County.

Approved the 1st day of July, A. D. 1895.

DANIEL H. HASTINGS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 12, 1895.

SIR: I have to acknowledge the receipt of your letter of the 9th instant, inclosing a copy of a law which renders the State quarantine station simply one of inspection and observation, and calling my attention to the importance of placing the Federal quarantine station at the mouth of the Delaware Bay in a state of complete preparation, etc.

In reply I beg leave to state that the United States quarantine station near the Delaware Breakwater is in a state of complete preparation, with perhaps one exception, viz, a special building for the detention of cabin passengers. It is believed, however, that should occasion require their detention means will be found for their comfortable care. The last Congress was requested to make an appropriation for a special building for cabin passengers at this station, but the estimate was not acted upon by the Appropriations Committee. * * *

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

BENJAMIN LEE, M. D.,
Secretary State Quarantine Board, Philadelphia, Pa.

REEDY ISLAND QUARANTINE.

Summary of operations, July 1, 1894, to June 30, 1895.

Vessels disinfected	11
Vessels inspected and passed	1,005
Vessels spoken and passed	21

The British steamer *Southwark*, of Liverpool, had one case of smallpox aboard on arrival at the station.

REEDY ISLAND QUARANTINE,
Port Penn, Del., September 2, 1895.

SIR: In obedience to Bureau directions to forward a statement of the transactions of the service of this station during the fiscal year ended June 30, 1895, together with an estimate of the needed alterations and repairs during the coming year, I have the honor to submit the following report:

The disinfecting pier is located in 30 feet of water on the Delaware River opposite to Port Penn, while the executive building, attendants' quarters, and cottage hospital are situated upon Reedy Island, westward toward the Delaware shore, a detailed description of which appears in the annual report of 1894.

During the year the buildings upon the island have been completed, partially furnished, and are now ready for any exigency which may arise. A temporary embankment, 4 feet high, was thrown up about the reservation last fall, inclosing an area a little less than 5 acres, which serves to keep out an overflow of salt water, at times several feet deep, until the work of filling in and stoning up the front bank can be accomplished, for which work an appropriation has already been made. This work will be done the coming winter, and is imperatively needed on account of the violent southeast gales which prevail during the spring and fall seasons, as well as from fields of floating ice in the winter.

In the month of February of this year a severe cold spell closed navigation upon the river for several weeks, and with the breaking up of heavy fields of ice the total destruction of the disinfecting pier was threatened; the ice breaks at either end were destroyed, but with favorable winds driving the ice toward the Jersey shore, and the use of wire cable ropes, the structure was saved. A contract has been let to replace this work with iron-shod ice breaks of a permanent character. During this period of ice formation the writer walked several times across from Reedy Island to Port Penn, a distance of a quarter of a mile over a rise and fall of tide water, an event which does not occur often in this locality. With the construction of the new ice breaks, a "tidal indicator" will be erected upon the north end to prevent outbound vessels grounding upon "Dan Baker Shoal," and will no doubt prove a valuable aid to commerce.

The cable running from the observation tower upon the pier to Port Penn, connecting with the wires of the Western Union Company, has been of fair service during the year.

Equipment of the station.—The quarantine steamer *Louis Pasteur* has been in steady commission throughout the year, and has proved the wisdom of converting her into an economical boarding and inspection steamer. The naphtha launch *Mercury* maintains an expeditious communication for mail and supplies, but can be used for boarding vessels only in very smooth weather.

The personnel of the station consists of a medical officer in command, with an assistant, acting as sanitary inspector and boarding officer, the services of both being required in the accurate and rapid inspection of large passenger steamships from the ports of Liverpool, Queenstown, Cork, Antwerp, Hamburg, etc. The crew of the *Pasteur* consists of a pilot, engineer, steward, two deckhands, two firemen and a cabin boy. The services of the engineer are also utilized in running the disinfecting apparatus, thereby saving the cost of a licensed engineer for this service.

A telegraph operator is detailed for duty in the observation tower, with an allowance of a ration from the station, and his services have proven very satisfactory. A watchman is also stationed upon the pier, and two attendants upon the island for the care of the buildings, small boats, and running the naphtha launch, for which no special expert is employed.

The work of sanitation.—In July, 1894, the British tank steamer *Lumen*, from North Shields, was detained with one of the crew having suspicious symptoms of cholera—vomiting, purging, and collapse. A bacteriological examination, however, gave negative results; under active treatment the patient recovered, the vessel being disinfected and released. In December, the large passenger steamship *Southwark* arrived at the breakwater with a case of smallpox, which was removed to shore and the vessel and passengers remanded to this station for treatment. From the afternoon to the next morning over seven hundred persons were vaccinated by myself, Dr. McDowell, and the ship's surgeon, without any friction or dissatisfaction from the passengers. The infected compartments, effects, etc., were disinfected and the vessel released. No cases developed afterwards.

At the request of the agents and owners, several outbound vessels, recently arrived from suspected or infected ports and destined to Southern ports of the United States, were disinfected and proceeded at once to destination with a certificate of treatment. This service at this station was given voluntarily, with the idea that the developmental period of observation after disinfection would be accomplished while the vessel was en route at sea, and accepted, after proper inspection, upon arrival in port. This appears to have proven satisfactory from the following letter sent to me at my request from the master of one of the vessels:

STEAMSHIP FERNDENE,
Port Tampa, June 15, 1895.

SIR: I am very pleased to inform you that we passed right up to town after visit at quarantine here, the fumigation at yours clearing us of $75 expenses, and also seven days' detention here; therefore please accept my very warmest thanks. This spring, by an oversight with the Spanish authorities, I was fined $150 and was to have paid it out of my wages; now, by the assistance I got from you, I am able to place the balance at the other side of the page and I will not forget to let my owners know it; consequently, I personally am interested. Therefore, again thanking you, I beg for the present to remain your debtor,

W. I. MILBURN.

Dr. A. H. GLENNAN,
Quarantine Station, Port Penn, Del.

During the fiscal year 1,005 vessels were inspected and passed, 21 vessels spoken and passed, a dozen or more vessels disinfected and held under observation, and several detained to fill out the five-day period from a suspected or infected port. Over 27,000 immigrants were examined, in addition to the large number of cabin passengers and crews of the vessels. As no contagious disease has at any time been detected among the cabin passengers, the certificate of the ship's surgeon is now accepted in lieu of their muster for formal inspection.

Number of patients treated.—While a small cottage hospital has been erected upon the island for the treatment of emergency cases, it is not contemplated to care for contagious diseases at this station, when better facilities exist at the Breakwater for their isolation and treatment. So far no accidents or injuries have occurred, but these are likely to happen at any time in the perilous work of the station. The hours for the boarding and inspection of vessels (from sunrise to sunset) are long and laborious, the station force being often up from 4 o'clock in the morning until 9 o'clock at night in the summer season, the boarding steamer necessarily coaling up after dark. At this station vessels are not required to anchor, but are met and inspected while under sufficient steam to keep headway, thereby saving a considerable delay. Recently, the time of inspection of passenger steamers has been temporarily extended to 9 o'clock at night, and although accuracy and quickness of decision are gained by experience in this work, this after-dark inspection does not tend to lessen a certain amount of anxiety as to errors of judgment; but, as Dr. Clod. Hansen, quarantine officer of Copenhagen, lately remarked while visiting this station, that "although Denmark does not undertake this after-dark inspection, yet the American mind is eminently practical, and while not dwelling too much upon theory, has conceived and executed the best maritime sanitation in the world."

Recommendations.—A special blank form should be furnished for use at all disinfecting stations, to become the property of the vessel for future reference, showing the history, cause of detention, treatment, time of observation, etc. The necessity for this was recently shown when a steamer was disinfected at this station, proceeded to Philadelphia, certificate of discharge taken up by the collector of customs; part of cargo discharged, thence to New York, where vessel was detained until statement of master could be verified by Dr. Doty by wire from this station that the vessel had been disinfected.

I have also to renew my recommendation that a fresh-water supply be provided by means of an artesian well. A coal, oil, and paint house is needed, and could be located upon piling branching out from the boathouse gangway. A foot walk and landing for the naphtha launch and small boats should also be provided upon the western side of the island.

Very respectfully, your obedient servant,

A. H. GLENNAN,
Passed Assistant Surgeon, M. H. S.

ESTIMATE.

For artesian well with pipe and sewer connections	$1,200
Coal and oil house	650
Piling and heavy timber bracing for same	300
Raised foot walk and small boat landing upon western side of island	300
Total	2,450

CAPE CHARLES QUARANTINE; POST OFFICE ADDRESS, FORT MONROE, VA.

From July 1, 1894, to June 30, 1895, 5 vessels were disinfected and 104 were inspected and passed.

On one vessel, the American bark, *Glad Tidings*, from Rio de Janeiro, one death from yellow fever occurred at sea, and on the American bark *Alice* from Havana, two cases of yellow fever occurred while at the station.

ADDITIONS, ALTERATIONS, AND REPAIRS MADE AT CAPE CHARLES QUARANTINE DURING THE FISCAL YEAR ENDING JUNE 30, 1895.

By P. A. Surg. T. B. PERRY.

Steamer Dagmar.—This vessel was docked and painted during August, 1894, at a cost of $135. Was docked and painted again in June, 1895, at a cost of $130. Other repairs were made to this vessel in August, 1894, while at the shipyard, such as overhauling the circulating pump, putting new valves in air pump, straightening grate bars, and putting in new bearing bar for the grate bars, etc., at a cost of $140.90. Some time later a new ash pan was put in under the furnace at a cost of $43, and a new filter box provided, costing $45, and a new ash hopper for ash chute was provided at a cost of $6. Repairs were made to the boiler feed pipe at an expense of $22.03. The cushions of the cabin were reupholstered at a cost of $23.

During June, 1895, while the vessel was at the shipyard, the air-pump valves were renewed and some minor repairs to machinery made, at a cost of about $26, and later a break in the valve gear of the high pressure cylinder necessitated the renewal of a rocker arm and other work at a cost of about $43. The pilot house, engine room, skylights, cabin skylights, and companion way cover, rail, and booby hatch forward were scraped and revarnished by the employees at the station, saving at least $500 to the Service. The vessel was several times painted by the crew and otherwise kept in repair.

Steamer Koch.—This vessel was docked and painted during August, 1894, at a cost of $115; a new boiler front was put in at an expense of $110; repairs were made to the galley stove at a cost of $8.40; the sulphur fumigating apparatus on board was provided with a new sulphurous acid gas delivery pipe and special hose for attachment to same for delivering the gas into ships' holds, at a total expense of $253. The steamer *Koch* was again docked and painted during June, 1895, at a cost of $110.

Ship Jamestown.—This vessel was provided with a complete sulphur disinfecting apparatus, consisting of an improved furnace for burning the sulphur, from which a pipe conducts the sulphurous acid gas into a pressure tank and from this tank, by means of a Sturtevant fan, the gas is drawn out and forced through the main delivery pipe along its entire length, or one-third of its length, or two-thirds of its length, and discharged at any one, two, or all of these three points, as desired, through 6-inch hose of desired lengths to suit the requirements of vessels of different classes when undergoing the process of disinfection. The house on deck which covers the steam chamber was extended forward sufficiently to cover the sulphur fumigating apparatus. A wooden tank for containing any disinfecting solution desired for use when cleansing an infected vessel was placed on the forward spar deck. This tank can be readily filled from the sea by means of a steam pump on the lower deck with which it is connected. This pump can also be used in case of fire, having been provided with 200 feet of hose for the purposes mentioned. Six bathrooms, four with showers, and two with tubs and showers, connected with a pump pressure tank and water heater, were put in at a total expense for sulphur disinfecting apparatus, tank for disinfecting solution, and bath apparatus of $4,211.

A hoisting engine was placed on the gun deck at a cost of $545, and seems to answer all the requirements of a steam windlass for raising anchor besides fulfilling all the purposes of a hoisting engine for ordinary lifting. A new anchor stock was provided for the anchor, which was broken, at a cost of $76.50. The ship was painted throughout—twice on the outside—and the small boats repaired by the employees at the station.

Steamer Ewing.—This vessel was returned to the United States Revenue Marine Service.

Fishermans Island.—The gangway to wharf was extended farther inshore 75 feet. A disinfecting house was built at the shore end of this gangway at a cost of $2,750. A bath house containing eight showers and one tub was built on to the disinfecting house at a cost of $2,975. A raised wooden tank, connected with the artesian well and pump, supplies water for the baths. Steam disinfecting machinery, consisting of a large steam chamber, boiler, and vacuum pump, was installed in the disinfecting house at a cost for installation of same of $4,773, the machinery having been purchased some time previously. A pump house was built over the artesian well, boiler and pump attached to the same, at a cost of $310. The kitchen was equipped with a steam-cooking apparatus at a cost of $1,082.50.

Pipe and fittings were purchased under advertisement and the laundry tubs were connected with the boiler of the steam-cooking apparatus, which now permits of water in the laundry tubs being heated by steam. This work was performed by the keeper of the station. A derrick was constructed by the employees of the station and placed on the wharf.

Board walks connecting the buildings have partly been provided by the keeper, who constructed them out of drift material found on the island. The keeper has further prevented the sand from blowing away from around the foundations of the buildings by collecting and placing about them layers of tules or marsh grass. Paints, oils, and tar for painting the buildings at the island and tarring the roofs of the barracks have been purchased and the work is now in progress.

A gangway ladder not in use on the ship *Jamestown*, but belonging to that vessel, was placed on the wharf at Fishermans Island to enable parties to land from a small boat at the pier. This was done by employees at station. Cleats were provided for the wharf at a cost of $33.

During the past winter the fender piles and front row of piles under the wharf, also two piles which supported the front sill of the house on the wharf, were carried away by ice. A contract was entered into between this office and a firm to have this piling renewed, using creosoted piles. The work was imperfectly done, and final settlement has not as yet been made.

Additions, alterations, and repairs thought necessary at Cape Charles Quarantine Station for the year ending June 30, 1896.

Water-closets and lavatories similar to those adjoining the wards of the United States Marine Hospital at Baltimore, Md., should be built adjoining each barrack, near the west end of each, which will permit of easy and complete drainage from same into the bay. They can be flushed from the water tank supplying the bath house. Piping to connect the barracks and other buildings with water tanks and pump at artesian well; also pipe fittings, pipe dies, pipe vise, faucets, etc., for completing the work; also a gang plank for landing from vessels, hose for use in case of fire. Stoves for the barracks and other buildings. Sand shovel or scoop for grading; the shovel to be of such size as is usually drawn by a single horse when in use.

Steamer Dagmar.—Should be docked and painted during August, 1895, and about April 15, 1896; estimated cost for same about $260. Additional repairs which may be necessary during the fiscal year will probably cost $150. New awnings complete will cost about $125. New circulating pump for steamer *Dagmar* of the centrifugal pattern will cost about $500. This circulating pump was reported as necessary for the vessel during the fiscal year just passed, but we have succeeded in making the old circulating pump answer, though not altogether satisfactory.

Steamer Koch.—Should be docked and painted about June 15, 1896; estimated cost for same about $110. Additional repairs which may be found necessary during the fiscal year will cost perhaps $40.

The barge.—Will perhaps require no repairs.

Officers and employees.—Steamer *Dagmar:* Medical officer in command, 1 pilot, 1 engineer, 1 boatswain, 1 ship's cook, 3 seamen, 2 firemen, 1 attendant. Ship *Jamestown:* 1 acting assistant surgeon, 1 hospital steward, 1 ship keeper, 1 machinist, 2 seamen, 1 ship's cook. Steamer *Koch* and barge: 1 watchman or keeper. Fishermans Island: 1 keeper.

Steamer *Dagmar*: In my opinion there should be four seamen employed on the steamer *Dagmar* while in commission, as previously recommended, to enable the management to maintain an efficient small-boat service for boarding vessels and keep the proper night watch on deck for the safety of the vessel without unnecessary hardship on the crew.

Fishermans Island.—When the quarantine steamer is out of commission there should be an assistant keeper on Fishermans Island, as last year during the winter; but in my opinion $40 per month will be sufficient salary for an assistant keeper during winter.

Appointment of pilots, engineer, and crew.—In my opinion, candidates for appointment to the positions of engineer and pilot of United States quarantine steamers should be qualified to report intelligently in writing the nature of any damage to the vessel in their respective departments, and draw up specifications, in proper form, covering necessary repairs, to be submitted to the Bureau and shipyards when requesting proposals for making any repairs on the vessels at the station. These officers should be required to perform such duties above mentioned, which have heretofore fallen upon the medical officer in command.

Enlistment of the crew.—It appears only proper that the crew when entering the Service should sign articles agreeing to remain by the vessel for at least one month from date of enlistment, and to the end of any month in which they have served a part of a month, otherwise they must forfeit the time served. It seems to me a good plan, also, when enlisting the men, to state in the articles that each man of the crew who remains by the vessel and gives faithful service during the entire quarantine season of any one fiscal year, shall at the end of the season receive $10 additional to their regular salary of the last month of service, when the vessel goes out of commission. This to be known as good-conduct money.

Appointment of keeper of island as custodian.—On account of the distance of the station at Fishermans Island from the boarding station near Fortress Monroe, and the great difficulty of reaching the island from Fortress Monroe when the quarantine steamer is out of commission, it appears proper to suggest that the keeper should be appointed custodian of the same. The post-office address of the custodian would then be Capeville, Va. Mail for the medical officer in command of this station sometimes goes first to Cape Charles before reaching Fortress Monroe, on account of the present address including Cape Charles Quarantine. I would respectfully suggest that the address be changed to United States Quarantine, Fortress Monroe, Va.

Relative to consular bills of health.—Vessels frequently arrive at quarantine from foreign ports with consular bills of health inaccurate as to the number of persons on board. Sometimes the number of persons on board is greater and sometimes is less than stated in the bill of health, which calls for the suggestion that greater care should be observed by consular officers abroad in issuing bills of health (particularly when quarantinable diseases exist in their district) too far in advance of the time of the sailing of the vessel, which might give opportunity for sailors to desert and cause embarrassment and perhaps detention of the vessel at quarantine on this side should the number of persons on board not correspond with that on the bill of health.

Cargoes.—Generally cargoes met with at this station can be disinfected in situ. Iron ore and raw sugar are the exceptions. These two varieties of cargoes just mentioned are destined for a process of complete disinfection upon arrival at their destination, which is a source of great satisfaction to sanitarians, and the regulations of the United States Marine Hospital Service require the holds of these vessels bringing such cargoes from ports where yellow fever prevails, to be thoroughly disinfected after discharge of cargoes before given pratique for ports south of the southern boundary of Maryland between May and November.

Certificate of discharge from quarantine.—The form of certificate of discharge from national quarantine is, in my opinion, too large and inconvenient to carry when boarding vessels. I would respectfully suggest the adoption of a quarantine declaration stub with detachable form for filling out a discharge from quarantine to suit the conditions under which vessels have been discharged from quarantine. I have attached a sketch of a sheet from the proposed quarantine declaration, giving the actual size. When bound in book form it will be of the same size as the present quarantine declaration. I would suggest also that a case of water-proof material with strap for going over the shoulder be provided for carrying the declaration when boarding vessels.

Library.—On account of the enforced isolation of those unfortunate enough to be placed in quarantine and the employees of quarantine stations, it seems proper to recommend that each national quarantine station be provided with a small library of standard works.

Vessels at the station.—In a very recent experience of taking heavy supplies to the ship *Jamestown* and to the station at Fishermans Island, I was more than ever convinced of the superiority of the tugboat class of vessels for the general work of the quarantine service over a vessel of the yacht build. In my opinion, the proper class of vessel for the quarantine service would be one intermediate between tug and yacht, somewhat smaller than but similar to the new buoy-tender *Maple* of the Fifth light-house district.

If the ship *Jamestown* is to remain on this station and the tug *Koch* left with said vessel as a tender, the steamer *Dagmar* and barge can be dispensed with here and a more economical yet efficient quarantine maintained. On account of the number of vessels attached to this station and the necessity of having them at points separate from each other, the seemingly large force of employees on duty here are so divided up among the different vessels and the island that neither the vessels nor the island have sufficient force of permanent employees to keep the property of the station in the best of order.

In conclusion, I record with pleasure the hearty cooperation of the local health officers with the management of this station in all matters pertaining to the preservation of the public health.

CONCERNING THE LOCATION OF THE CAPE CHARLES QUARANTINE.

The following correspondence relates to the location of the Cape Charles Quarantine Station, particularly with reference to the commerce of Baltimore, the location of the boarding station, and facilities for inspecting and disinfecting Baltimore-bound vessels:

BOARD OF TRADE OF THE CITY OF BALTIMORE,
Baltimore, September 19, 1895.

SIR: Will you kindly inform me whether there has been any change in the location of the national quarantine for this port as heretofore existing on Fishermans Island, and also whether the statement which I have seen recently in public print is true, that the quarantine officer in connection with this station does not reside on the island, but at Hampton Roads?

As you are no doubt aware, the shipping interests of this city would very much like a change in the location of this quarantine station, believing that, as at present located, it works to the disadvantage of our port.

Asking that you will give me the facts, I am,

Very truly yours,
EUGENE LEVERING,
President Board of Trade.

DR. WALTER WYMAN,
Supervising Surgeon-General, M. H. S., Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., September 20, 1895.

SIR: I have to acknowledge the receipt of your letter of the 19th instant, requesting to be informed whether there has been any change in the location of the national quarantine for the port of Baltimore and whether it is true that the quarantine officer in connection with the quarantine station does not reside on the island, but at Hampton Roads.

You further state that the shipping interests of Baltimore would very much like a change in the location of this quarantine station, believing that as at present located it works to the disadvantage of the port.

In reply I have to inform you that early in 1893, when cholera was very threatening from Europe, recognizing the necessity of establishing a safeguard for Baltimore and other cities on Chesapeake Bay and its tributaries, and the desirability of doing this also with the least possible interference with the commerce of the great port of Baltimore, I obtained an appropriation from Congress of $7,000 for the purchase of a site for a quarantine station in Chesapeake Bay, with the intent of establishing a new station directly in the line of vessels bound for Baltimore. After careful survey and examination of all other localities, and after consultation with experienced commercial men and pilots having the interest of the city of Baltimore at heart, Hog Island was chosen, at the mouth of the Patuxent River—a most desirable site. Strenuous opposition, however, was encountered. It is unnecessary to give the details thereof, but I will say that it came largely from shipping interests, and I believe much of it was in consequence of a misapprehension of the intention of this Bureau in the matter of quarantine for Baltimore. The plan was conceived wholly in the interest of commerce—to expedite it—when subject to unusual surveillance on account of cholera. The opposition, and the fact that it was not clear that a perfect title could be given to the Government, and the necessity of acting immediately, in view of the threatened cholera, led to the necessity of abandoning Hog Island and erecting the buildings necessary to accommodate detained immigrants on Fishermans Island, off Cape Charles, which the Government had already in possession, and which had been used as a quarantine station. Accordingly, this island has been put in a complete state of preparation for the reception of 1,000 immigrants who might necessarily require to be held under observation. A landing pier and gangway have been constructed, and, besides the barracks, there is a large kitchen, dining room, laundry, steam-disinfecting chamber, bathroom for immigrants, keeper's residence, and an artesian well for supplying water. This is the quarantine station proper for Chesapeake Bay, and each year contagious diseases taken from vessels entering the mouth of the Chesapeake are here treated. As, however, it is so far removed from the ordinary track of vessels, the boarding station is at Hampton Roads or Fort Monroe. This season, by reason of the diminished danger from cholera, the boarding between the capes of vessels entering Chesapeake Bay, and bound to Baltimore, has not been insisted upon, requests having been received to this effect. Therefore, it does not seem, as suggested in your letter, that the quarantine station at Fishermans Island is working to the disadvantage of your port. At any time, however, should an emergency demand it, the Government would not hesitate to begin boarding vessels bound for Baltimore at the entrance of Chesapeake Bay. A fine boarding steamer is provided for this purpose, and vessels for Baltimore would then be obliged either to come in the vicinity of Thimble Light for inspection, or the boarding officer would be instructed, when practicable, to board vessels in their regular line of travel to Baltimore.

I will say, however, that the Government also possesses the old naval vessel *Jamestown*, which is in perfect condition, and supplied with a steam-disinfecting chamber, a sulphur-fumigating furnace, and apparatus for throwing disinfecting solutions, and accommodations for 200 or 300 people. This vessel is a complete quarantine plant in itself. It is used now in Hampton Roads whenever disinfection is necessary, and in emergency could be anchored farther up the bay in the line of vessels, and the boarding of Baltimore-bound vessels could be conducted therefrom.

The same problem which confronted the Bureau in 1893 with regard to Baltimore existed with regard to Philadelphia, the national quarantine station for which port was at the Delaware Breakwater, where, on account of the roughness of the water, the boarding of vessels was often delayed.

I transmit, under separate cover, for your information, a copy of the handbook of the Lower Delaware River, prepared by the Philadelphia Maritime Exchange, on pages 23 to 36 of which will be found a description of what the National Government has provided in the way of quarantine on the Delaware River and Bay.

I will add that the inspection of Philadelphia vessels is accomplished at the breakwater when the vessel is liable to arrive too late for inspection at Reedy Island, or at Reedy Island when the vessel has arrived too late at the breakwater for inspection. This Bureau is doing practically all of the quarantine work on the Delaware River and Bay, and the system is efficacious and the service is prompt.

I have gone into this subject at considerable length, both because I am interested in the matter and that you might be fully informed.

Photograph of Fishermans Island mailed to-day.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Hon. EUGENE LEVERING,
President Board of Trade, Baltimore, Md.

BOARD OF TRADE OF THE CITY OF BALTIMORE,
Baltimore, September 23, 1895.

MY DEAR SIR: I beg to acknowledge receipt of your very interesting and valued favor of 20th, as also copy of the handbook of the Philadelphia Maritime Exchange and photograph of Fishermans Island, for all of which I am very much obliged to you.

Your letter has enlightened me considerably on the subject of the national quarantine for Chesapeake Bay and Baltimore; in fact, removing the impression which I had received from certain quarters as to said quarantine working to the disadvantage of this port, at present, at least. And it may be that when in actual operation, and all vessels are required to stop at said quarantine, even then no actual hardship will result other than would occur if located elsewhere.

I have not had time to consult the actual shipping interests engaged, but as stated, your letter would seem to indicate that the Government has done the best it could.

Very respectfully,

EUGENE LEVERING, *President.*

Dr. WALTER WYMAN,
Supervising Surgeon-General, U. S. M. H. S., Washington, D. C.

UNITED STATES QUARANTINE STATION, SOUTHPORT, N. C.

In accordance with the act of Congress approved August 18, 1894, the site for the new United States Quarantine Station near Southport, N. C., was selected by a board consisting of a medical officer of the Marine-Hospital Service, the commanding officer of the revenue cutter stationed at Wilmington, and a representative of the State board of health of North Carolina, as recorded in the previous annual report. Plans were drawn and contracts have been made through the Supervising Architect's Office, and the station is in course of construction at the present time. Pending its completion, the Marine-Hospital Service assumed control of the quarantine by detailing a regular medical officer in charge. The following correspondence ensued between the Bureau and the governor of the State:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 18, 1895.

SIR: I have the honor to inform you that P. A. Surg. J. M. Eager, United States Marine-Hospital Service, has assumed charge, under orders, of the quarantine service at Southport, N. C. This action has been taken by this Bureau by request of the State board of health of North Carolina, and in accordance with an act of Congress approved August 18, 1894, making appropriation for a quarantine station at Southport, and a further act of Congress approved March 2, 1895, "making appropriation for sundry civil expenses of the Government for the fiscal year ending June 30, 1896," providing the necessary expense for maintaining quarantine at Southport during said year, and finally, in accordance with the act of Congress approved February 15, 1893, entitled "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service."

I have also respectfully to inform you that sanitary inspectors have been appointed for quarantine duty, in accordance with the last-named act, at Beaufort, N. C., Washington, and Newbern. These last-named places being entirely unprotected, the said service has been provided by this Bureau in accordance with the wishes of the State board of health, as expressed through their president, and act of Congress of February 15, 1893.

Trusting the above-described efforts to perfect the quarantine protection of the State will meet with your approbation,

I have the honor to remain, very respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

His Excellency the GOVERNOR,
Executive Department, Raleigh, N. C.

STATE OF NORTH CAROLINA, EXECUTIVE DEPARTMENT,
Raleigh, July 20, 1895.

SIR: I have the honor to acknowledge the receipt of your favor of the 18th instant, notifying me that, at the request of the State board of health, the Marine-Hospital Service had assumed charge of the quarantine service at Southport, in accordance with acts of Congress approved February 15, 1893, August, 1894, and March, 1895, etc.; also, that sanitary inspectors had been appointed for the towns of Beaufort, Newbern, and Washington, N. C., all of which I most emphatically indorse and approve. I consider at the present time it is very necessary that the State should be protected by a quarantine service, and the action of the Government in assuming control and establishing a quarantine station at Southport has my hearty approval.

I have the honor to be, yours, very truly,

ELIAS CARR,
Governor of North Carolina.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

SOUTH ATLANTIC QUARANTINE; POST-OFFICE ADDRESS, INVERNESS, GA.

The following vessels detained at this station were infected: Spanish barkentine *Amalia*, American steamship *Montreal*, American bark *Violet*, British steamship *Marston Moor*, British steamship *County Down*, and the American schooner *Sadie Willcut*.

REPORT OF THE MEDICAL OFFICER IN COMMAND.

SOUTH ATLANTIC QUARANTINE STATION,
June 30, 1895.

SIR: I have the honor to present the following report of the operations and general condition of this station for the fiscal year 1895. During this period 56 vessels have been inspected and passed, and 44 vessels have been disinfected and detained for observation. The practice of speaking and passing vessels does not obtain at this station, all being subjected to inspection. Of the vessels detained 17 were from Habana; 9 from other West Indian ports infected or suspected of infection with yellow fever; 13 were from Rio de Janeiro and Santos; 5 were from other South American, Central American, and Mexican ports which were suspected or known to be the habitat of the same disease. Of these vessels 25 were bound for Savannah; 8 for Brunswick; 2 for Port Royal; 3 for Fernandina and other Florida ports, and 6 for Darien and Sapelo.

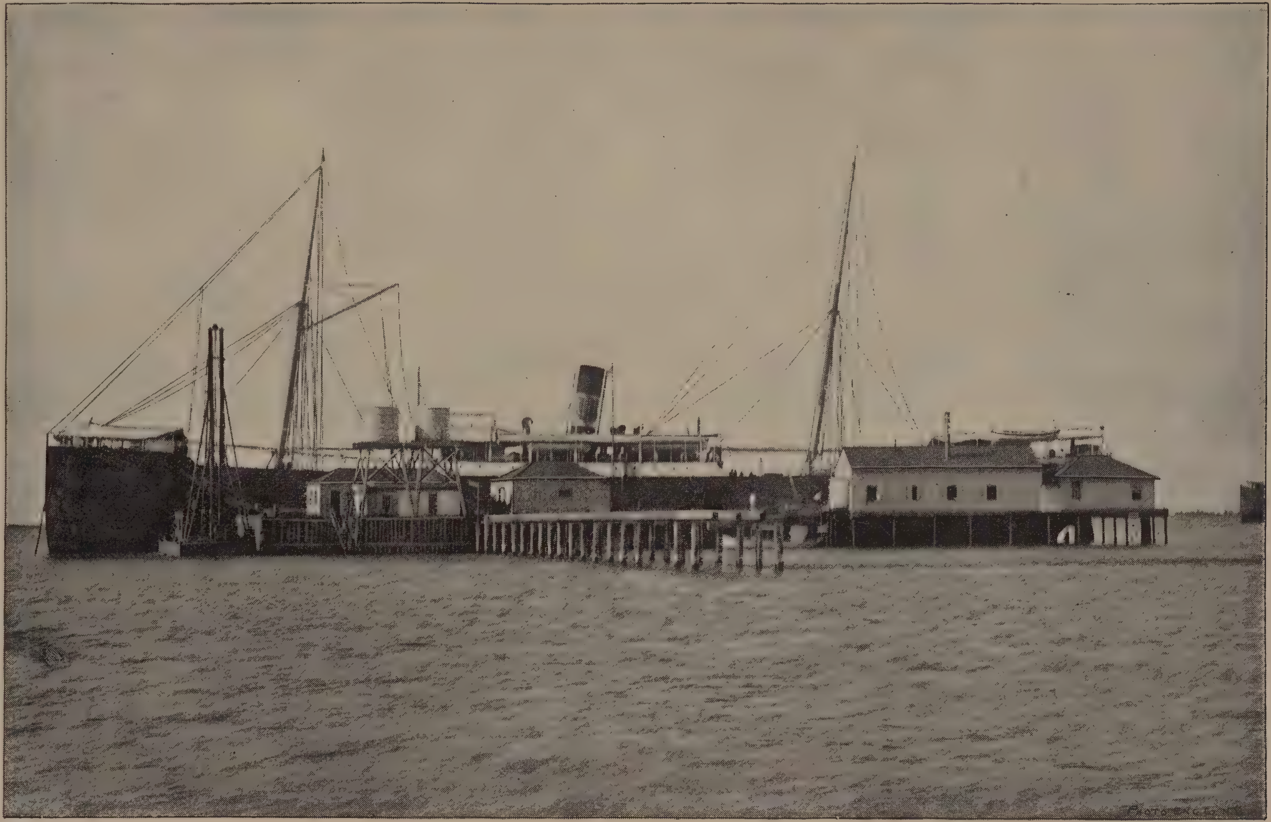
The medical history of the station for the twelve months has been uneventful. A supposed case of yellow fever having developed on the American schooner *Sadie Willcut* at the Brunswick quarantine, the vessel was hastily remanded to this station. Upon her arrival the case was so far convalescent that it was impossible to either confirm or disprove the diagnosis, and the question must therefore be left unsettled. The Spanish bark *Borinquen* was also remanded from the same station, having a history of yellow fever on board at Habana, and having on arrival at this station one of the crew convalescent from an attack of the disease of some severity. The Norwegian bark *Vasco de Gama* was also remanded here from the same station on account of the death on board at the station of the captain, which death was, however, proved on necropsy to have been due to acute miliary tuberculosis of the intestines. The suspicion in the first two cases was well founded; in the third it was unjustifiable and an unnecessary amount of expense was entailed on the vessel, and hardship on the crew and a passenger of the vessel.

GENERAL DESCRIPTION OF STATION.

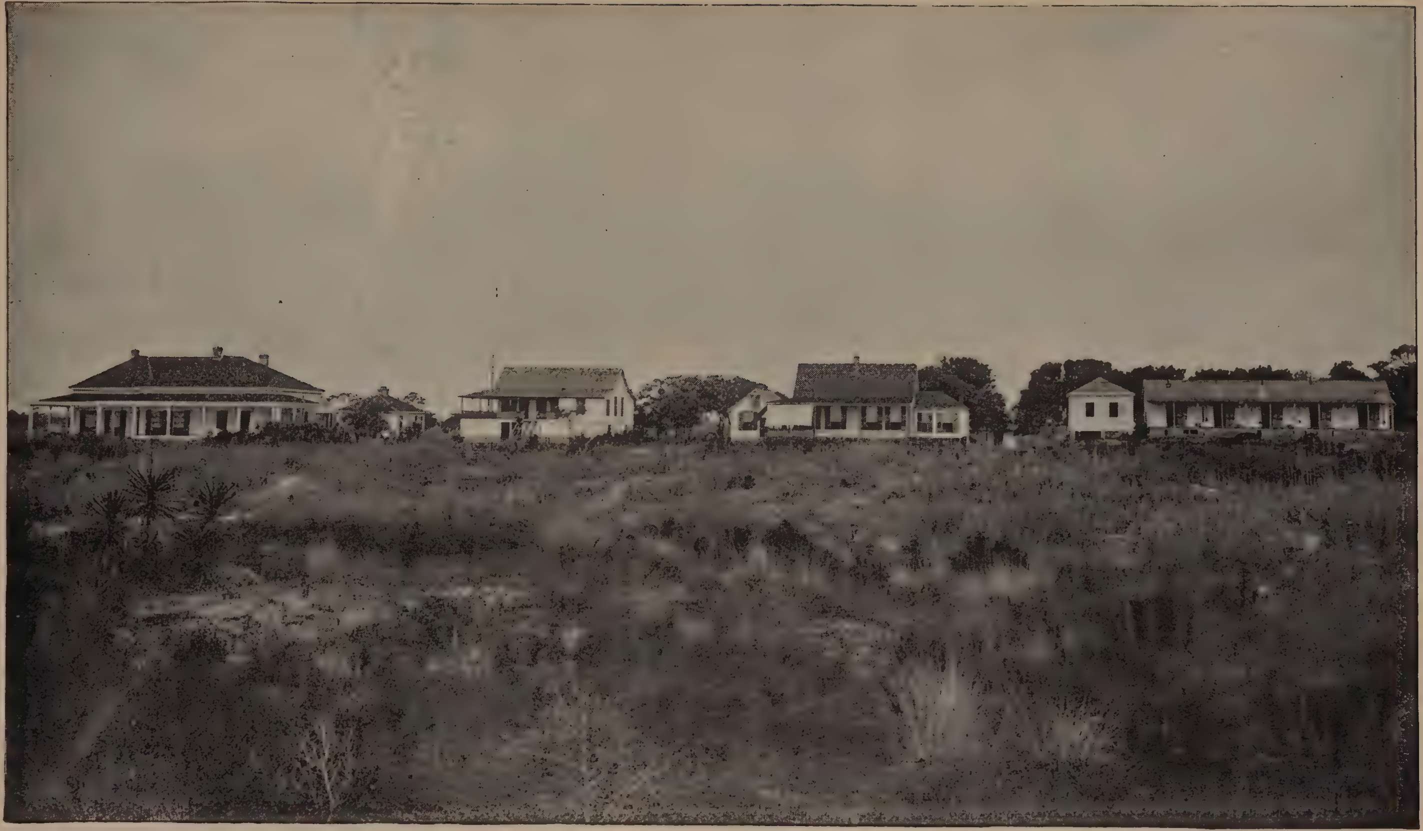
The station has been so fully described by the Surgeon-General and others that further description is hardly necessary, except to note that it is situated on Blackbeard Island, a triangular portion of land bounded by the waters of Sapelo Sound upon one of its sides, by the Atlantic Ocean upon another, and upon the third side by Blackbeard River, a narrow, tortuous, and tidal stream. This river is of sufficient depth at all points save one, where there exists an artificial channel or "cut" having a depth of 7 or 8 feet at high tide, but almost dry at low water. For sanitary reasons the boarding and inspecting station has been established at the north end of the island and the residence and executive portion at the south end, and this deficiency of water in the cut prevents the launch or other boat being used during the greater portion of a tidal cycle. At other times it is necessary to drive from one end of the island to the other upon the sea beach, and this is only practicable at such times as the tide is low. The project of dredging this cut to a depth of 5 feet at low water is now under consideration and will probably be soon undertaken and the problem of communication be very much simplified.

NORTH END.

At the north end are situated the wharves, upon which are erected the machinery for the discharge of ballast, consisting of a double-cylinder friction-drum hoisting engine, iron ballast tubs, and an iron bottom dumping ballast car of 1 ton capacity. The ballast is hoisted out of the vessel, loaded into this car, and the car is then carried on a track built upon a gangway extending toward the shore, at right angles with the wharf, and dumped into deep water. Upon this wharf also is placed a building which serves as a coal house, and kitchen, and dining room for attendants, and above it, upon a substantial framework, are erected two tanks for the mixing and storage of bichloride-of-mercury solution, the water for this and other purposes being supplied by an artesian well driven alongside of the wharf, and from which the water is distributed by piping to all parts of the wharves and disinfecting plant. The bichloride solution is distributed from the tanks by means of a steam pump and hose, the pump taking steam from the hoisting boiler and throwing it under heavy pressure to all parts of a vessel undergoing disinfection. Situated nearly on the prolongation of this wharf, and connected thereto by a gangway, is another wharf



SOUTH ATLANTIC QUARANTINE, BLACKBEARD ISLAND, GEORGIA—DISINFECTING WHARVES, NORTH END.



SOUTH ATLANTIC QUARANTINE, BLACKBEARD ISLAND, GEORGIA—QUARTERS AND EXECUTIVE BUILDING, SOUTH END.

built of iron piles, upon which is erected a building containing a steam disinfecting chamber, jacketed, 16 feet long by 7 feet 6 inches square, provided with steam-tight doors at either end, and equipped with all the necessary valves and piping for the application to clothing, bedding, and fabrics of dry heat and live steam; vacuum apparatus, pressure and vacuum gauges, and thermometers; a double-ended sulphur furnace of the Charleston pattern, provided with an exhaust fan and upright slide-valve engine for its operation; a pump for boiler feeding and fire purposes, and a 30-horsepower upright boiler for supplying the necessary steam. The steam chamber is provided with a car, running on a track through the length of the same, and the building is divided into two compartments by a tight transverse partition. In one of these the car is loaded with the articles to be disinfected, and at the completion of the process the articles are removed from the other end of the chamber and thence conveyed on board again, complete separation thus being effected between infected and disinfected dunnage.

The sulphur dioxide, produced by the combustion of sulphur in the furnace, is conveyed by means of the fan into pipes of spiral riveted galvanized iron, 12 inches in diameter, extending from the nozzle of the fan along the gangway connecting the two wharves. This large pipe is provided, at equal distances, with four 6-inch outlets for the gas, which are fitted for the connection of flexible-rubber suction hose, by which it is led to the compartments of the ship requiring disinfection.

Situated upon the wharf, and beyond the disinfecting building, is another, fitted as a lodging place for the officers and crew of the vessel undergoing disinfection. The equipment of the station, while not of the most modern type as regards steam chamber, is still a very satisfactory one, and does good service. It is to be remembered that improvements in such machinery are constantly being evolved as the results of experience, and that which was quite modern at the time of its installation, becomes in a very few years only a landmark on the road of progress, while still retaining a high degree of usefulness. Certain additions and improvements are, however, urgently needed in this part of the station, and will form the subject of recommendations in another part of this report.

SOUTH END.

At the south end, and there located on account of the superior healthfulness of that portion of the island, are situated the residence of the medical officer in command of the station; a residence for the steward; an office building; quarters, kitchen, and mess room for attendants; attendants' bathroom; laundry; stables; feed house, and a hospital building of two wards.

All of these buildings are of substantial frame construction, shingle roofs, and are commodious, conveniently arranged, neat, and comfortable. There is an abundant water supply from an artesian well, distributed by piping to all parts of the reservation and flowing with such force as to afford ample protection from fire, several hydrants and a liberal supply of fire hose being provided. The water from the well is in ample quantity, far exceeding all possible demands, but is unfortunately heavily charged with hydrogen sulphide and is extremely hard from the presence of calcium sulphate, and is consequently not pleasant for either drinking or washing. The station is provided with three horses, an ambulance wagon, a spring wagon, and a Dayton for use in reaching the north end. Authority has been given for the purchase of a new Dayton and another horse, those in use being worn out by hard work and by the heavy service required of them. The station is provided with a 30-foot 10-horsepower naphtha launch, built by the Gas Engine and Power Company of New York; and two new boats, one of them a 23-foot surf boat, have recently been provided.

PERSONNEL.

The personnel of the station is as follows, in addition to the medical officers: One acting assistant surgeon, who also discharges the duty of steward, nine attendants, and a mail carrier. The duties of the attendants are distributed as follows: Two on duty at the disinfecting station at the north end—these are assisted by a third when occasion requires; two as pilot and engineer of the naphtha launch, one of whom is a skilled carpenter and acts as such, being assisted by the other; one as painter and general outside man; one as hostler and gardener; one as cook; one as laundress, and one as general outside man and attendant about office and charged with the general cleanliness of premises. One of these attendants is immune to yellow fever, and, in the event of such services being required, will act as nurse for patients suffering from said disease. The mail carrier makes a daily trip from the post-office at Inverness, Ga., to the station and returns to that place with the mail the same day.

REPAIRS AND IMPROVEMENTS.

During the fiscal year the following expenditures have been incurred in additions and alterations to the plant and equipment of the station: A steam pump and all piping on the disinfecting wharf, having been burst and disabled by freezing, were replaced, at a cost of $116; a complete outfit of necessary carpenters and pipe tools was provided, at a cost of $104; the transfer barge and freight lighter having become useless from leakage, caused principally by the boring of the teredo, material was provided for thoroughly overhauling and repairing the same, at a cost of $310; the disinfecting plant was improved by the addition of a jet vacuum apparatus to the steam chamber and vacuum gauges for showing and regulating the action of the same, a new arrangement of galvanized piping for the distribution of sulphur dioxide, by which four outlets were provided instead of one, as formerly, and a Hancock inspirator for boiler feed, at a cost of $371; new hose for the distribution of bichloride solution was provided, at a cost of $55; 100 feet of rubber suction hose for use with the sulphur furnace, at a cost of $388; two boats, at a cost of $291; furniture for the residence of the medical officer, at a cost of $650; and awnings for the same building, at a cost of $50.

These quarters are now completely and neatly furnished, and the building itself being well designed, commodious, and well finished, the quarters are equal in comfort to any furnished by the Service at any station. In addition to these expenditures there have been authorized, but not yet incurred, the purchase of a horse, at $217, the purchase of a new Dayton wagon and harness, at a cost of $185, street lamps for lighting the reservation, at a cost of $28, and an electric alarm bell outfit, at a cost of $18, all of which may be confidently expected to much increase the comfort and ease of administration of the station. In addition there was appropriated by the last Congress, and now immediately available, $350 for the installation of a telephone service between the ends of the island, which will to a wonderful extent simplify the management of the affairs of the station and save unnecessary trips to the north end, which have now to be made once or oftener each day, simply to see if any vessels have arrived at the quarantine anchorage since the last visit. The old wharf at the disinfecting station has for some time been in a ruinous and dangerous condition; but repairs, the plans for which were prepared by the Supervising Architect of the Treasury Department, are now in progress and will be completed within three months, at a probable cost of about $7,000. In addition to these expenditures, authority has been incurred by the custodian during the year for the purchase of the necessary materials for the partial painting and renovation of all buildings on the reservation, and the request has been made for an additional allotment from the appropriation for the repairs and preservation of public buildings for completing this necessary and desirable work.

LOCAL RELATIONS.

The relations of the Service, as represented by this station, with State and local health officers have been most cordial, and the pratique of the station is accepted, so far as is known, without hesitation wherever presented. Indeed, the relations of this station with the port of Savannah are most intimate and cordial, and the medical officer in command, by request of the authorities of the city of Darien and with the consent of the Bureau, acts as quarantine officer for that port.

The situation of the station is somewhat peculiar, the island being bounded on one side by Sapelo Sound and being in close proximity at its southern end to Doboy Sound, both of which waterways lead to the port of Darien and to the various lumber-loading points in the vicinity. As all vessels are inspected only at the Sapelo Sound end of the Station, the Doboy Sound entrance was left unguarded and a sanitary inspector was appointed to guard this approach, with instructions to remand all vessels requiring inspection under the quarantine regulations of the United States to the boarding and inspection station on Sapelo Sound.

INSUFFICIENT WHARFAGE.

In point of equipment, the station is in excellent condition as regards its appliances for disinfection, but is sadly hampered in the matter of the discharge of ballast from vessels by the lack of room, there being only sufficient wharf space to discharge one vessel at a time, and when the wharf is occupied by a vessel discharging ballast, a process which requires in some instances a week, no other vessel can be brought to the disinfecting wharf for disinfection. This inflicts a severe hardship on many vessels, notably steamships, which usually arrive in water ballast, and the detention of which pending the discharge of ballast from a sailing vessel is a matter of serious cost to this class of vessels. A full statement of the facts in this matter of ballast discharge was presented to the Bureau under date of January 22, 1895. The conditions stated therein still exist, and the difficulties foreshadowed have been encountered in actual practice, two steamers having been compelled to wait for their disinfection while a sailing vessel was discharging her ballast. The recommendation for a special ballast wharf will therefore be renewed at the proper place in this report.

DISINFECTING APPARATUS.

Another item in the disinfecting plant should be mentioned here, and will also at the proper time form the subject of special recommendation, and that is the apparatus for sulphur fumigation; and while applying particularly to the needs of this station, I think that the comments will be found applicable to all stations equipped with this form of apparatus. The sulphur furnace in use is the one known as the "Charleston pattern," which was illustrated in the Annual Report of the Supervising Surgeon-General for 1892, and which consists essentially of a double-ended furnace with a fire box at each end, over which are placed shallow cast-iron pans containing the sulphur, the whole being inclosed in a sheet-iron casing. The sulphur dioxide produced by the combustion of the sulphur passes into a reservoir, and thence is aspirated into pipes of galvanized iron by means of an exhaust fan, and conveyed to the vessel by means of flexible rubber hose. So far as the production of the gas in suitable volume is concerned, this apparatus leaves nothing to be desired. The presence of 16 to 18 per cent of SO^2 in the discharge pipe of the fan and the end of the hose has been sufficiently verified by analysis to be regarded as the normal and constant output of the apparatus; But this percentage of the gas is not constant in all parts of the hold of the ship or other compartment undergoing disinfection. In fact, it has been found by the same methods of analysis that the air of the ship's hold at the completion of the combustion of the required amount of sulphur may vary within very wide limits, a variation from 7½ to 16 per cent having been discovered in different parts of the hold of the same vessel. This result has been predicated before, but has never to my knowledge been the subject of official investigation. It was supposed when this pattern of furnace was adopted that the pressure of the blast from the fan would be sufficient to produce equal diffusion, but it has been found that at 400 revolutions per minute—the highest speed at which the fan can be constantly run without undue and dangerous heating of the whole furnace—the pressure of the blast was only from two to three ounces. This is insufficient to thoroughly displace the confined air of the hold of a vessel, and reliance must therefore be placed on the escape of the said air through vents purposely left open, or upon diffusion by the difference of the specific gravity of the air, and the air containing, say, 16 per cent of sulphur dioxide. Reliance might be placed upon this latter procedure, but for the fact that the gas is introduced comparatively hot; that the air of the hold is thereby unequally heated, and consequently that the law of the diffusion of gases is interrupted by the difference in temperatures existing in various parts of the compartment. With this somewhat lengthy preface, it would therefore seem to be desirable that the furnace should be replaced by another, operating upon a different principle, or that the one now in use should be supplied with an apparatus to first partially exhaust the air of the hold, and into the partial vacuum thus formed to inject under pressure an atmosphere containing a proportionate excess of gas over the 10 per cent required by the regulations; in other words, that use should be made of a pattern of furnace, resembling that in use at the Louisiana quarantine. Further, it would seem to be desirable that some substitute should be found for the flexible rubber hose now used for the conduction of the gas, for it is one of the most expensive items in the whole disinfecting plant, one of the least durable, and which gives more trouble in practice than any other one item. It was adopted experimentally in the beginning to replace the hose of asbestos, which was found to be open to the objection that it was very expensive and tore easily when at all wet.

Speaking for myself alone, it may be said that the rubber hose has not proved an efficient substitute. It is expensive, it soon becomes baked into a hard, inflexible tube, which cracks easily and is then useless, and if sufficiently stout to resist this action it is inordinately heavy and difficult to handle. The subject of the use of a hose made of canvas has received consideration, and it is only possible now to say that it promises well and possesses the advantages of being cheap, efficient, and easily made at the station by any attendant who is enough of a sailor to sew the canvas to the required dimensions.

A very decided improvement in the steam chamber in use at this station has been the adoption of the jet-vacuum apparatus, by which results have been attained fully equaling those of the expensive air pumps, at a cost of not one-third of that apparatus, and at a saving of time of fully one-half for the production of the same results. Their adaptation to any existing chamber is an easy matter, and the difference in results in the superior penetration of steam into fabrics, saving of time in reaching the required temperature, and perfect dryness of the articles submitted to this process of disinfection, can only be appreciated by one who has witnessed the performance of a chamber with and without this appliance.

Another point to which attention is invited is the ruinous effect of the acid solution of mercuric chloride on pumps, hose couplings, and nozzles. The quarantine regulations prescribe an acid solution in every case, but it is my impression that the said solution was designed for the disinfection of cholera-infected vessels especially, on account of the superior germicidal effect of acid solutions on the cholera spirillum, and that it was not the intention of the board preparing the first quarantine regulations that such solution should be used as a matter of routine in the disinfection of vessels suspected of infection with yellow fever. It is suggested that the regulations might with advantage be modified in this respect, and should occasion arise for the disinfection of a cholera-infected vessel, the requisite amount of muriatic acid could easily be added to the solution. It has been the observation at this station that the law in regard to the consular bills of health is being closely observed by vessels. But few have arrived without such bills. In most of the instances where they have been wanting, inquiry has devoloped the fact that there was no consul or consular agent at the port of departure, and in a few cases only one bill of health has been furnished by the consular officer, and that of the old form, showing that either the new forms have not been issued, or that the consuls have failed to make use of them.

HABANA BALLAST.

A serious abuse has been the character of the ballast brought by vessels from West Indian ports, and especially from Habana, the ballast being far from clean, hard rock or even clean sand, but has in almost every case contained refuse, street sweepings, and other articles of a far from cleanly and harmless nature. A notable case occurred at this station in the ballast of the Spanish bark *Borinquen*, where at least 30 per cent of the bulk of the ballast was composed of refuse of every description, some of an extremely filthy and disgusting nature. The abuse was so flagrant that report of the matter was made to the Bureau, and the report was referred to the sanitary inspector at Habana for explanation. Habana ballast continues to be to-day, as it always has been, a menace and a crying abuse.

RECOMMENDATIONS.

1. The first requirement of the station at the north end is a special ballast wharf 400 to 450 feet long and 20 feet wide, at right angles with the present wharf, and extending inshore, fully equipped with tracks, a portable hoisting engine, and ballast cars for the rapid discharge of ballast from one or more vessels at the same time.
2. Another pattern of sulphur furnace, or the modification of the present one, to exert an aspirating effect on the air of a ship's hold, and the injection into the partial vacuum thus formed of an atmosphere containing a high percentage of sulphur dioxide.
3. The erection upon the beach at the north end of a small boathouse, connected by a gangway 150 to 200 feet long with the shore, to enable landings to be made at low water. The present practice of forcing small boats over the shallows and oyster banks near the shore is ruinous to boats, and in a short time will render the most substantially constructed one useless; and in addition, it is impossible to land any freight from the barge upon the beach save at high water.
4. A small stable at the north end is also urgently needed to shelter the horses driven to that point from the bleak winds prevailing in winter. To drive a horse 8 miles and then leave him standing for a greater or less length of time upon an open beach is not humane, and is conducive to rendering the animal useless from rheumatism or pneumonia and its sequelæ.
5. A permanent hospital establishment at the north end—a frame building of sufficient size for, say, six beds and the necessary adjuncts for executive and administrative purposes—is also very desirable.
6. At the south end a frame building about 20 by 30 feet, to be used as a general storeroom, is urgently needed, as there is now no storeroom of such a character, and public property suffers from the effects of wind and weather.
7. A new stable and loft for the storage of forage is also urgently needed, as the buildings now in use for that purpose are old, patched, and have been added to from time to time until little of the original buildings remain, and they are not fitted for the protection of the horses in the severe and bleak weather of winter.
8. It is also recommended that two more fire plugs or hydrants be provided, and that the water from the artesian well be piped to the neighborhood of the stables for better protection in case of fire. It is also recommended that an additional 500 feet of 2-inch fire hose be provided for the same purpose.
9. It is further recommended that cisterns or tanks be provided for the collection and storage of rain water for potable use, to obviate the discomfort and possible danger incident to a use of the extremely hard water furnished by the artesian well.

Very respectfully,

H. D. Geddings,
Passed Assistant Surgeon, Marine-Hospital Service.

Surgeon-General Marine-Hospital Service.

ADDITIONAL PIER REQUIRED AT SOUTH ATLANTIC QUARANTINE.

Attention is respectfully invited to the necessity of increased wharf facilities at the South Atlantic Quarantine Station, which is the station of refuge for the cities of North Carolina, South Carolina, and Georgia. An estimate for an additional pier at this station was made, approved by yourself, and transmitted to the last Congress, but was not favorably acted upon. During the past season, by reason of the want of this additional pier, great delay has been caused to vessels obliged to be disinfected under State and national quarantine regulations. An estimate for an additional pier has been included in the regular estimates of the Department for the ensuing fiscal year. Following is certain correspondence showing its necessity:

SOUTH ATLANTIC QUARANTINE STATION,
January 22, 1895.

SIR: Referring to the item $10,000 for a new wharf at this station, submitted in his estimates to Congress by the honorable the Secretary of the Treasury, I have the honor to state that in my opinion the new wharf is one of the prime necessities of the station for the following reasons: The class of vessels seeking quarantine treatment at this station is composed largely of sailing vessels from South American ports, bound to the ports of Savannah and Darien, Ga., and Charleston, S. C., as well as a few bound for Fernandina, Fla. It may be said that all these vessels arrive "in ballast," and in addition there has lately been an increasing number of steamships and American sailing vessels (principally schooners), arriving "light" or in "water ballast." According to the quarantine regulations of both Savannah and Charleston, and the regulations of the State board of health of Florida, which apply at Fernandina, no ballast of any description is allowed to be brought up to the several cities, no matter what its origin, or the port of departure of the vessel carrying it. Therefore the ballast of all vessels arriving at this quarantine station must be discharged, as a preliminary to any processes of disinfection. The quantity of ballast carried by the vessels varies with the size of the vessel, her nationality, build, rig, etc., from 150 to 450 tons, and, with all the diligence to which the crews of foreign vessels can be spurred and assisted by the steam hoisting engine of the station, it is seldom that more than 50 to 75 tons per day can be discharged. It will thus be seen that it is a matter of from three to six days to discharge the ballast of a single vessel. The present wharf accommodation of the station consists of two wharves, connected by a gangway, and affording a total wharf frontage of 250 feet, or only sufficient to berth one vessel at a time, and on this wharf are placed the steam hoisting apparatus already referred to, and the apparatus for the steam, sulphur, and bichloride-of-mercury disinfection of vessels, necessary and required by the quarantine regulations of the United States. Therefore all vessels requiring disinfection must await their turn to discharge ballast before they can be disinfected, and it sometimes happens that a steamer with water ballast or an American vessel without ballast of any description must wait for her turn for several days before she can be brought to the wharf for the disinfection which she requires, which disinfection is a matter of only thirty-six to forty-eight hours. To obviate this hardship (for it is the time unnecessarily spent in quarantine to which shipmasters object), it is proposed to erect near the present wharves, possibly at right angles to them, another wharf, narrow and with a frontage of 350 to 400 feet, to be known as a "ballast wharf," on which the steam hoisting apparatus could be placed and at which two vessels could be berthed and their ballast discharged, when they could proceed to the "disinfecting wharf" for the disinfecting processes proper with a minimum of delay. I estimate that the time of detention of vessels in quarantine would be shortened at least one-half by this method of procedure, and when it is known that 60 to 70 vessels per annum are treated at this station, the saving to commerce effected by the expenditure of a comparatively small outlay of money will be readily seen.

Very respectfully,

H. D. GEDDINGS,
Passed Assistant Surgeon, M. H. S., In Command of Station.

SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE,
Washington, D. C.

SAVANNAH, GA., *October 1, 1895.*

DEAR SIR: Confirming telegrams exchanged, we regret to learn that the steamer *Martin Saenz* will be delayed at Sapelo quarantine by reason of a lack of facilities there and that Dr. Geddings can not even approximate the date of the fumigation of that steamer. We had already taken the precaution to write to the surgeon in charge of the quarantine at Sapelo before the steamer was due, urging him to expedite her fumigation as quickly as possible. We may say that shipowners are not averse to a reasonable quarantine, but when their vessels are detained for lack of facilities or other unnecessary causes, it becomes both ruinous to them and disastrous to commerce. Seeing that we can not reasonably expect the *Martin Saenz* to reach our port before the middle of this month, we have had to provide other freight room for the cargo engaged for her, at an extra cost to us of $2,000, which would have been avoided had the steamer *Martin Saenz* met with prompt attention at Sapelo.

The steamer *Boskenna Bay* was to have left Habana on the 26th September, and no doubt has arrived at Sapelo. This steamer is also intended to load at Savannah, and if she has to wait her turn at the wharf at Sapelo you will readily perceive that the delay will be ruinous to her owners.

* * * * * * *

We beg to thank you for the prompt manner in which you have taken hold of the situation, and sincerely trust that you will remedy the evils at the earliest possible moment.

Yours, truly, STRACHAN & Co.

Surg. Gen. WALTER WYMAN,
United States Marine-Hospital Service, Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 2, 1895.

SIR: I have to acknowledge receipt of your telegram of the 30th ultimo, urging the quick dispatch of steamers at South Atlantic Quarantine Station bound for the port of Savannah.

* * * * * * *

Concerning the delay at South Atlantic quarantine, I have to say the Bureau has taken every means in its power to expedite the disinfection of vessels. Another pier, however, is absolutely necessary at this station, and an estimate for one, which could have been completed by this time, was made by myself, and approved by the Secretary of the Treasury, and presented to the last Congress. The appropriation, however, was not made. The matter will be again brought to the attention of Congress in December. * * *

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Dr. W. F. BRUNNER,
Secretary Board of Sanitary Commissioners, Savannah, Ga.

THE SAVANNAH COTTON EXCHANGE,
Savannah, Ga., October 17, 1895.

SIR: At a meeting of the Savannah Cotton Exchange, held this day, the following preamble and resolutions were unanimously adopted:

Whereas it has come to our knowledge that vessels from Cuban ports and infected ports of South America coming to this port for cargo, and required by the health authorities to call at the South Atlantic quarantine station at Sapelo for fumigation and observation, are meeting there with unnecessary detention that is both ruinous to shipowners and damaging to our commerce; and

Whereas said detention arises from the fact that there is only sufficient wharf room to accommodate one vessel at a time instead of the fleet of vessels that sometimes gather there; and

Whereas the said quarantine station is under the control of the Government of the United States and its Marine-Hospital Service, which department should and ought to provide ample facilities to accommodate the fleet of vessels compelled to go there; therefore be it

Resolved, That the Senators and Representatives from Georgia be, and they are hereby, requested to investigate the cause of this lack of facilities at Sapelo, and demand that they be extended and increased, and if necessary to urge upon Congress the importance of making an appropriation of money sufficient for the extension of the wharves and facilities at Sapelo to meet the demands of commerce.

Resolved, further, That copies of these resolutions be sent to the Surgeon-General of Marine-Hospital Service at Washington, D. C., and to each of our Senators and Representatives in Congress, with the additional request that they give this matter, so vitally important to the commerce of the world, their most urgent attention.

BEIRNE GORDON,
President.
J. P. MERRIHEW,
Secretary and Superintendent.

Hon. WALTER WYMAN,
Surgeon-General, Marine-Hospital Service, Washington, D. C.

BRUNSWICK QUARANTINE, BRUNSWICK, GA.

REPORT OF THE SANITARY INSPECTOR, MARINE-HOSPITAL SERVICE, IN CHARGE OF THE STATION.

BRUNSWICK UNITED STATES QUARANTINE,
July 26, 1895.

SIR: I have the honor herewith to make the following report of the transactions of this station for the fiscal year ending June 30, 1895: Number of vessels disinfected, 76; number of vessels inspected and ordered to South Atlantic Quarantine for disinfection, 7; number of vessels inspected and passed, 130; total, 213. Of the 76 vessels disinfected, 36 were in accordance with the United States quarantine laws and regulations, having arrived at this port from infected or suspected ports during the quarantine season. Twenty-five of that number arriving from infected ports between November 1 and May 1 were discharged of ballast at quarantine, and had hold, decks, and dunnage wood washed with mercuric solution before pratique was granted. Of the vessels disinfected, 30 were from Habana, 5 from Cienfuegos, 15 from other Cuban ports, 4 from Rio de Janeiro, 3 from Santos, and 19 from suspected ports of the West Indies and South America.

During the year 7 vessels were ordered to South Atlantic Quarantine, after inspection at this station, with sickness on board, or having had sickness on board prior to arrival.

Four cases of yellow fever were treated; 1 on board the American schooner *Sadie Willcutt,* from Cienfuegos, and 3 on board the Spanish bark *Amalia,* from Habana.

Other diseases treated were as follows: One case acute miliary tuberculosis, died; contused wound of scalp, 1 case, recovered; incised wound of face, 1 case, recovered; diarrhœa, acute, 7 cases, recovered, 7.

The site of the present station is an artificial island made from the accumulation of ballast. It is 1,000 feet in length and 350 feet in breadth, with an average height of 6 feet above the level of high tides. It is situated upon the north side of Oglethorpe Bay, 3 miles east of the city of Brunswick, being in a line almost direct between the city and the ocean bar. It is separated from the mainland by 2 miles of soft marsh, which is covered by water at high tides. This line of marsh is divided by Plantation Creek, which makes it impossible for anyone to reach the city from the station except by boat.

The station is equipped with the latest improved disinfecting machinery, consisting of fumigating sulphur furnace with automatic fan, a Francis-Kinyoun steam disinfecting chamber, vacuum pump, bichloride and fresh-water tanks, and steam pump for the application of disinfecting solution, and is connected to a supply of both fresh and sea water. The disinfecting plant, which is admirably adapted for the work, was built in April, 1894, under the supervision of the Surgeon-General of the Marine-Hospital Service, and was put in operation May 1 of the same year.

The station is furnished with hoisting engine, ballast cars, and track, for discharging ballast of vessels. An additional ballast wharf, to be furnished with hoisting engine, cars, and track, has been provided for by Congress, and will be constructed as soon as the present quarantine season is ended.

Quarters for the officer in charge and hospital attendants are ample for the present number employed.

The personnel of the station during the season, from May 1 to November 1, consists of the officer in charge and four attendants, viz: One engineer, one boatman, one cook and laundress, and one night watchman. The engineer and boatman are trained to do the work required in disinfection of a vessel—the crews of vessels not being allowed to aid in doing such work. The watchman keeps guard at night over vessels in quarantine, to see that no communication occurs from one vessel to another, or from other sources. His services are not retained from November 1 to May 1.

No extensive improvements were made during the fiscal year. A new Whitehall boat was purchased; $1,550 was appropriated for building addition to ballast wharf, and for supplying an additional hoisting engine, ballast cars, tracks, and trestle.

The relations existing between the quarantine administration and State and local authorities have been pleasant. No case of sickness has occurred on board or resulted from contact with any vessel after having been given pratique at this station.

Special caution has been taken, both winter and summer, as to the disposition of ballast from infected and suspected ports. Vessels arriving from such ports during the season from November 1 to May 1 are discharged of ballast at quarantine and hold of vessel washed with solution of bicholoride, 1 to 800, to sterilize any particles of earth remaining, since owing to the mildness of the winter here, sufficient cold might not exist to prevent danger from that source.

I respectfully recommend that another site be chosen for the station farther removed from the city and more out of the line of the passage of daily boats plying between Brunswick, St. Simons, and Jekyl Islands and adjacent ports, since the present site is not sufficiently isolated as to fully eliminate all source of danger, from proximity to the line of passing boats, the channel being narrow and on the side nearest the station.

Very respectfully,

R. E. L. Burford,
Sanitary Inspector, Marine-Hospital Service.

Surgeon-General,
Marine-Hospital Service.

KEY WEST QUARANTINE; LOCATION, DRY TORTUGAS; POST-OFFICE ADDRESS, KEY WEST, FLA.

REPORT OF OPERATIONS.

KEY WEST QUARANTINE, *July 10, 1895.*

GENERAL: I have the honor to submit the following report on the Tortugas United States Quarantine (officially known as Key West Quarantine, Fla.) for the year ending June 30, 1895, viz:

During the fiscal year ending June 30, 1895, 51 vessels were attended to at this station. During May and June, 1894, 6 vessels, and in the same months for 1895 (included in this report) 20 vessels were attended to. Thirty-seven vessels were attended to in the Florida quarantine season, i. e., from May 1, to November 15, 1894, but the total number for the fiscal year was 51.

Of the 6 vessels treated during May and June, 1894, 5 were United States schooners and 1 a British barkentine; 2 were from Cardenas, 2 from Habana, 1 from Matanzas, and 1 from Mobile. The latter had been remanded from Key West to have relief given to a man sick with suspicious symptoms; the disease proved to be malarial fever; the patient was removed and the vessel permitted to proceed to Sagua.

The British barkentine had discharged at Tagliapiedra wharf in Habana (the worst place in the world when yellow fever is considered), and had one man to desert in whose stead another was shipped. She left Habana June 13 and arrived here June 17 with two men suffering with yellow fever, both of whom recovered.

The patients were isolated and the vessel treated in full twice, being detained for seventeen days, when she was given pratique for Mobile.

Of the 51 vessels attended to during the official year 1895, 31 were in 1894, and 20 in May and June, 1895, and the nations and rigs were as follows, viz:

United States schooners	37	British ships	1
United States barks	2	British steamships	3
United States steamers	2	Spanish steamships	2
British schooners	2		
British brigs	1	Total	51
British barkentines	1		

The places hailed from, viz:

Habana	18	Sagua	1
Caibarien	3	Cardenas	7
Matanzas	7	Cienfuegos	2
Santiago	1	Nombre de Dios	1
Cay Francis	1	Kingston	1
Puerto Rico	1	Rio de Janeiro	1
Falmouth, Jamaica	1	St. Lucia	1
Key West	1	Philadelphia	1
Port de France	1		
Tampa	1	Total	51
Pascagoula	1		

Of the above one called three times and two twice each.

The vessels from domestic ports called for medical relief or water and have been reported as inspected and passed. The other forty-seven vessels were given regulation treatment and the six infected vessels were treated twice. Seven of the vessels had ballast. Of these, three discharged sand and earth (one Havana white rock) and reballasted with sand by aid of the United States quarantine schooner *Montross.*

Four dipped the rock and cobblestone ballast in mercury solution. One vessel from Rio, with granite ballast, dipped 580 tons in two days. It will be observed that West India traders seldom carry ballast, or if one does, a small quantity, and that it will not be needful to make elaborate arrangements for discharging and reballasting them. But vessels from Brazilian ports and the River Plata will generally have a good quantity of ballast. Rio vessels bring rock, as a rule, which can be dipped in a short time. Those from lower down the South Atlantic coast or from the Spanish Main are, as a rule, compelled to take sand or earth ballast, which, if the port where it came from has been infected within three years, must be replaced with noninfected ballast at any cost of time and labor. Havana and Matanzas vessels may get stone ballast at an enormous cost. Santiago and Cienfuegos ballast, always sand unless taken from another vessel, should always be put out; so, also, of Vera Cruz. It is not assumable, however, that all earth and sand are infected nor that all the bad ballast comes from the yellow-fever regions, for I have seen much garbage from London, Bristol, and Liverpool that would endanger the health of a community.

The ports bound to were, viz:

Charlotte Harbor	13	Key West	1
Pascagoula	12	Jacksonville	1
Port Tampa	8	New Haven	1
Apalachicola	2	Orders or "to sea"	2
Pensacola	3		
Mobile	7	Total	51
Boston	1		

No return reports of further detention or mishap to any vessel discharged from here and seeking entrance to her port have come to this office, except in case of a United States schooner that had taken sand ballast here had to put the same out in quarantine at Tampa Bay (the only place where ballast can be reasonably landed) before being permitted (or in fact being ready) to load at Port Tampa.

SICKNESS.—From June 1 to December 8, 1894, 2 office patients and 14 hospital patients were treated; from December 8, 1894, to June 30, 1895, 53 office and 7 hospital patients were cared for. The office relief was for various slight and transient diseases and injuries; the hospital relief was given to, viz:

Yellow fever, 10 cases; malarial fever, 4 cases; effects of heat, 1 case; typhoid fever, 1 case; sunstroke, 2 cases; debility, 1 case; hemorrhage of bladder, 1 case; thecal abscess, 1 case. One death occurred, in case of the master of a schooner bound from Jamaica to Boston; the obtainable history and necropsy gave evidence of excessive use of alcohol as the cause of sickness and death. The corpse was buried on Bird Key, but no report of the case was made at the time.

All of the yellow-fever patients came from Havana vessels. Of the 11 vessels from Havana treated from June 30, 1894, to the end of quarantine, 2 had lain at Tagliapiedra wharf, 4 at San José, 2 at West Regla, 1 at East Regla, and 2 in the open bay. Five of these brought yellow-fever cases; 2 had discharged at Tagliapiedra, 1 at San José, and 2 at West Regla. Eight cases were taken from these vessels.

Of the 7 vessels arriving from Havana during May and June, 1895, 3 had lain at Tagliapiedra wharf, 1 at San José, 1 at East Regla, and 2 in the open bay. One of those from Tagliapiedra wharf had 2 cases of yellow fever after her arrival here. Close inquiry brought out the fact that the men had sneaked ashore in the night against the orders of the very careful master after he had retired.

One vessel arrived in July from Sagua with report of 1 death at that port, but as the man had shipped at Mobile a month before and on the voyage out a shipmate had a severe attack of malaria fever, and others were sick with the same, the presumption was that the man died with remittent fever.

LOCATION, ETC.

Los Cayos de las Tortugas, or the Turtle Islands, called Tortugas, and somewhat noted as "The Dry Tortugas," are the coral rock and lime sand outcroppings of the great "middle ground" of the mouth of the Mexican Gulf and the entrance to the Gulf Stream. North latitude, 24°38′; west longitude, 82°52′.

At some time there were 11 islets or keys, but at present but 8 are considered, three having disappeared and are now only reefs or shoals.

The group of keys cover an area of 8 miles square, the northeast and southwest limits being 11 miles apart.

Garden is the central key, consisting of about 10 acres, on which is situated Fort Jefferson and Tortugas Harbor Light, the latter having a range of 13 miles. Three miles to the west is Loggerhead, lying from northeast to southwest, having an area of one-eighth by three-fourths miles, on which is situated Dry Tortugas Light, having a range of 18½ miles. Sand, Middle, and East Keys are on an east and west line, running about 1 mile north of Garden Key, distant 1½ miles from each other.

Sand Key is 1¼ miles northeast from Garden Key; Middle, 2¾ miles northeast, one-half east; and East, 4 miles to the northeast by east. Bird Key lies three-fourths of a mile southwest by west of Garden Key. This has for many years been used as a graveyard, and now is the location of a small contagious-disease hospital.

Bush Key and Long Key are awash at low water and run in a curved direction from north to south, forming a reef protection averaging a half mile in distance to the east and southeast sides of the fort and inner harbor. All the keys, except Garden and Loggerhead, are but small sand lumps with a growth of low shrubbery, weeds, and grass. The light lime sand shifts considerably from action of winds and waves; in fact, all seem to be diminishing except Garden, which was at one time nearly all inclosed by the fort and now has two spits of sand, one on southeast and one on the north, which are increasing in area; southeast spit is increasing in size; north spit has all been made in twenty-two years. The shoals and flats are numerous, but are all apparent in good weather.

The protections are: North and northeast, North Key. Northeast Key and Pulaski shoals, with the intervening islands, East, Middle, and Sand Keys. To the east, Long and Bush Key shoals; to the southeast and south, Bush and Bird Key shoals; to the southwest, Bird Key and Southwest Key shoals; to the west, Loggerhead Key and shoals. Wind protection is not good from northwest and due north except for the fort, or inner, harbor, which is secured by the intervention of Garden Key and fort.

The anchorage to the northwest of Garden Key has an usable area of 1 by 1½ miles with from 7 to 11 fathoms of water and excellent holding ground, and is well protected in all directions except from due north. Safe for all vessels of large draft.

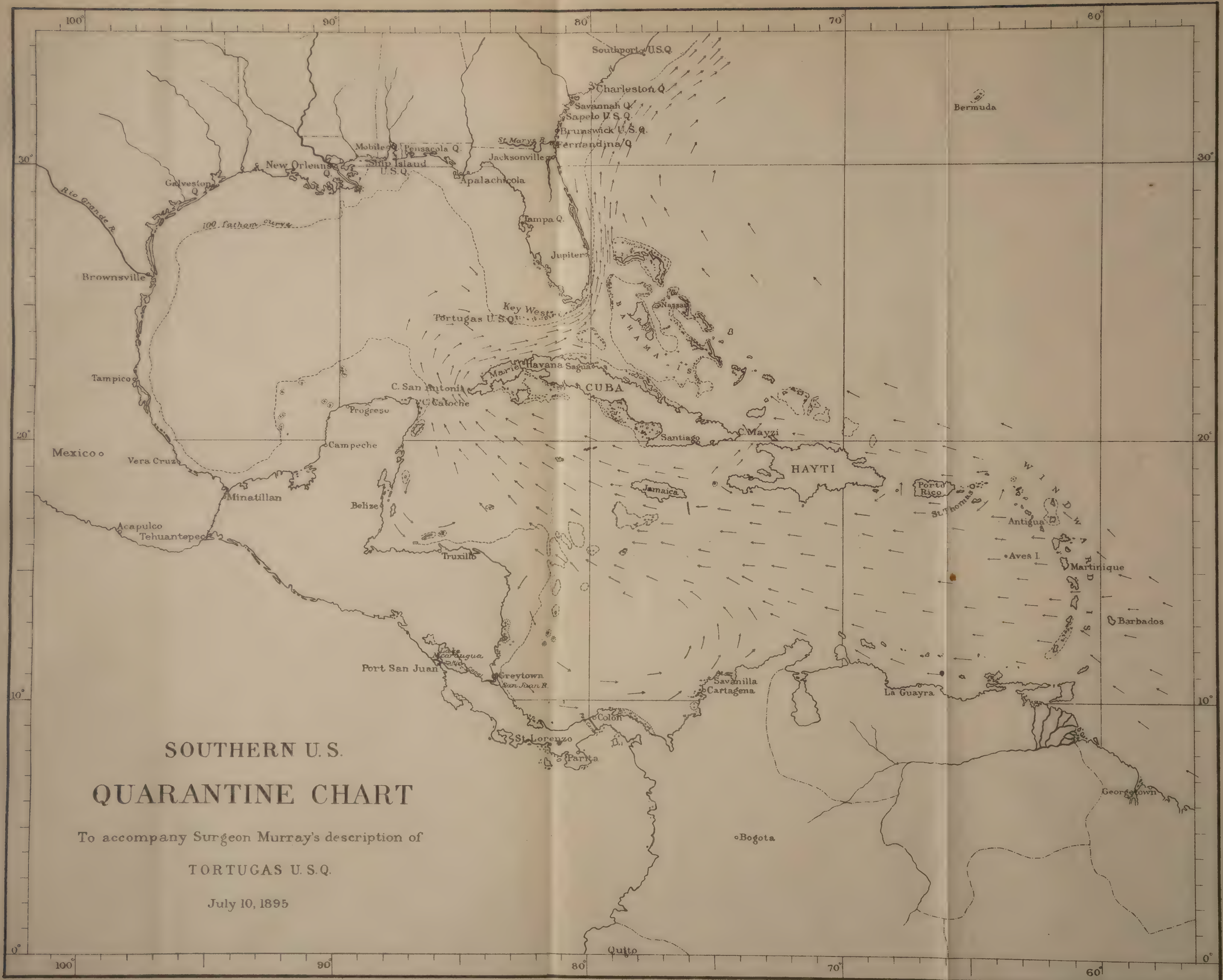
Into this anchorage are three channels—from southeast, southwest, and northwest—with over 5 fathoms in the former, 9 in the second, and 7 in the latter; with a little care any vessel in the world now built or to be constructed can go to Tortugas quarantine without a pilot.

An excellent and secure harbor for small vessels is Bird Key Harbor, lying between Bird Key and the fort.

Fort Jefferson is six-sided, the angles being projected. The angles or bastions are directed to the north, northeast, southeast, south, southwest, and northwest, the faces or curtains facing in directions between these.

The fort is surrounded by a 70-foot wide moat, which is made by a brick and concrete breakwater. There are two openings in the breakwater—on east and west sides—through which the tide ebbs and flows. The chief value of the breakwater is to prevent the force of waves in bad weather from throwing water throughout the lower casemates and the fort.

The inclosed area is about nine acres and is occupied by officer's quarters, 44 by 288 feet on the north-northwest side; soldier's quarters, 38½ by 337 feet on the east side,



SOUTHERN U.S.

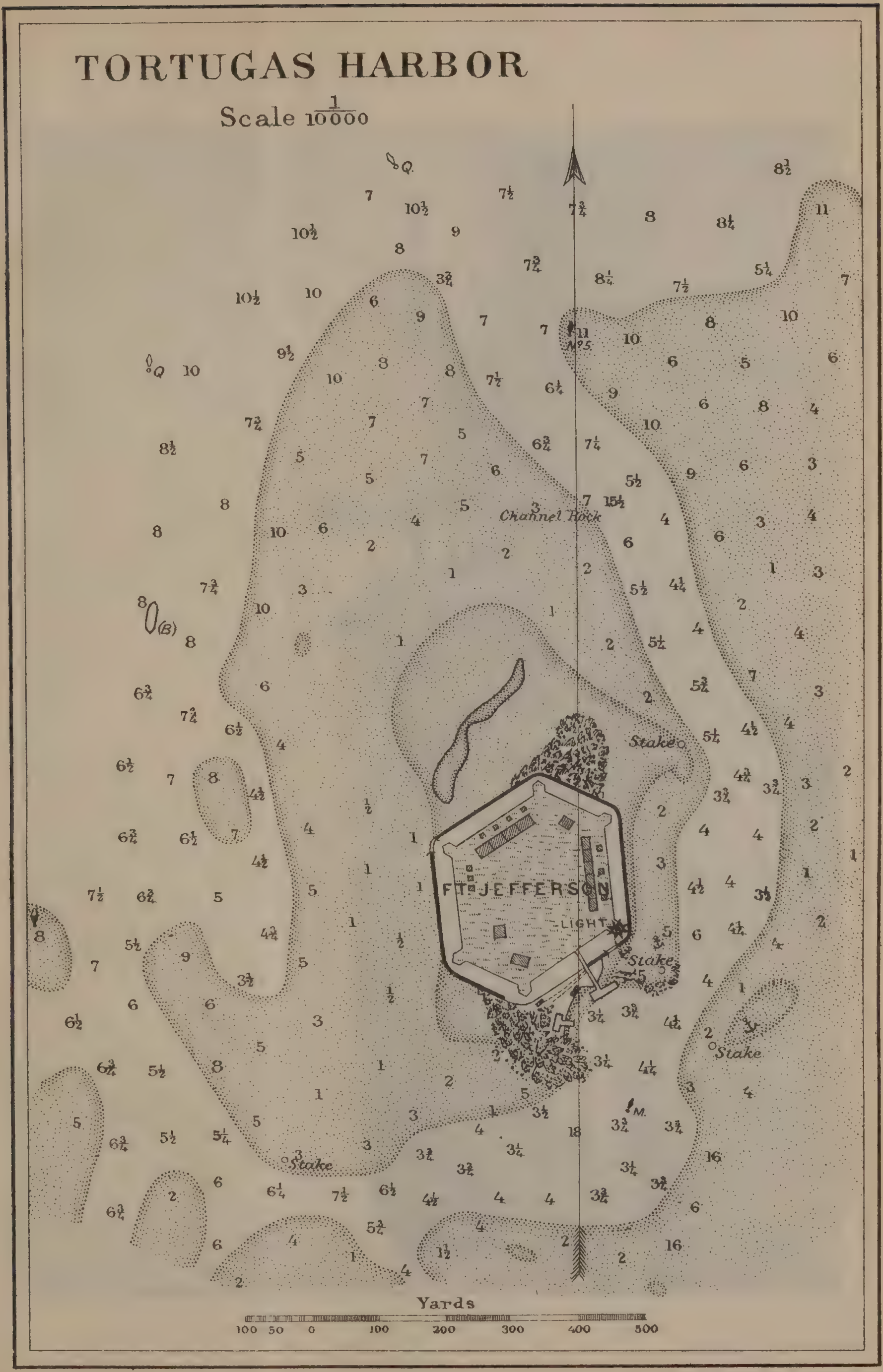
QUARANTINE CHART

To accompany Surgeon Murray's description of

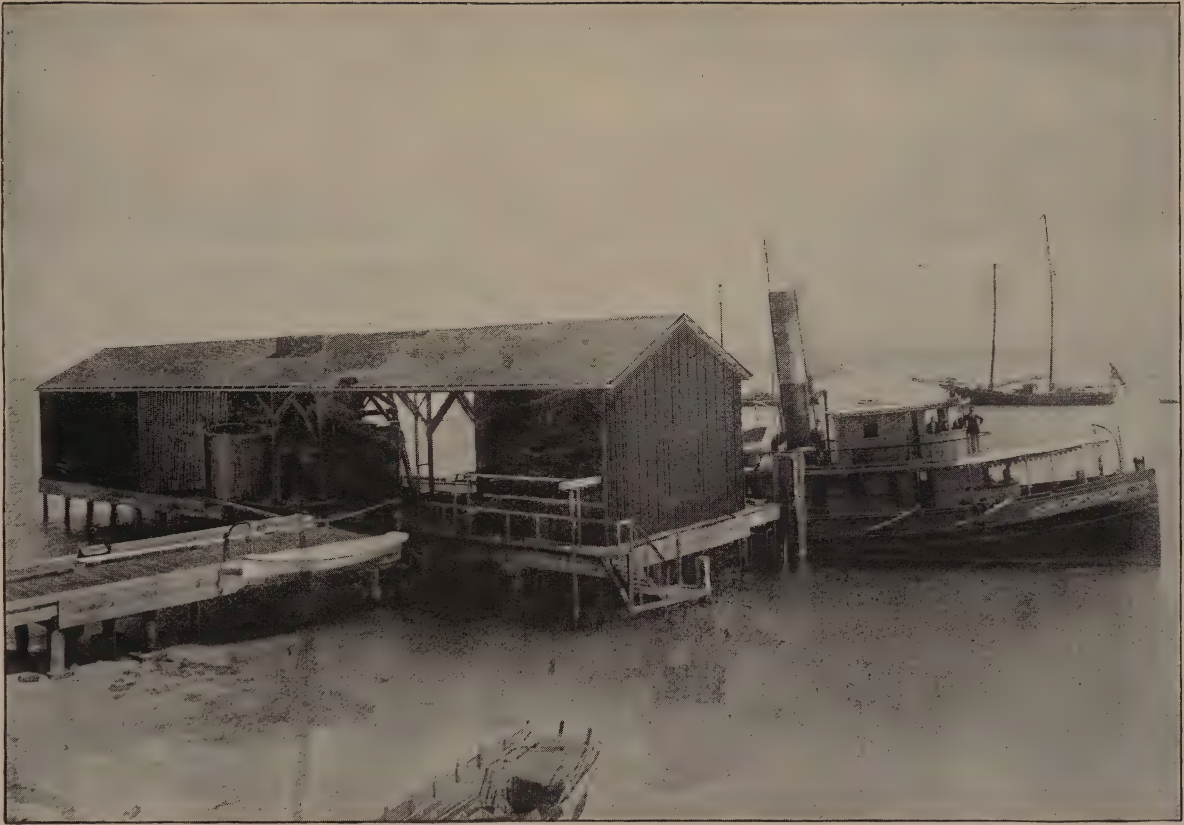
TORTUGAS U.S.Q.

July 10, 1895

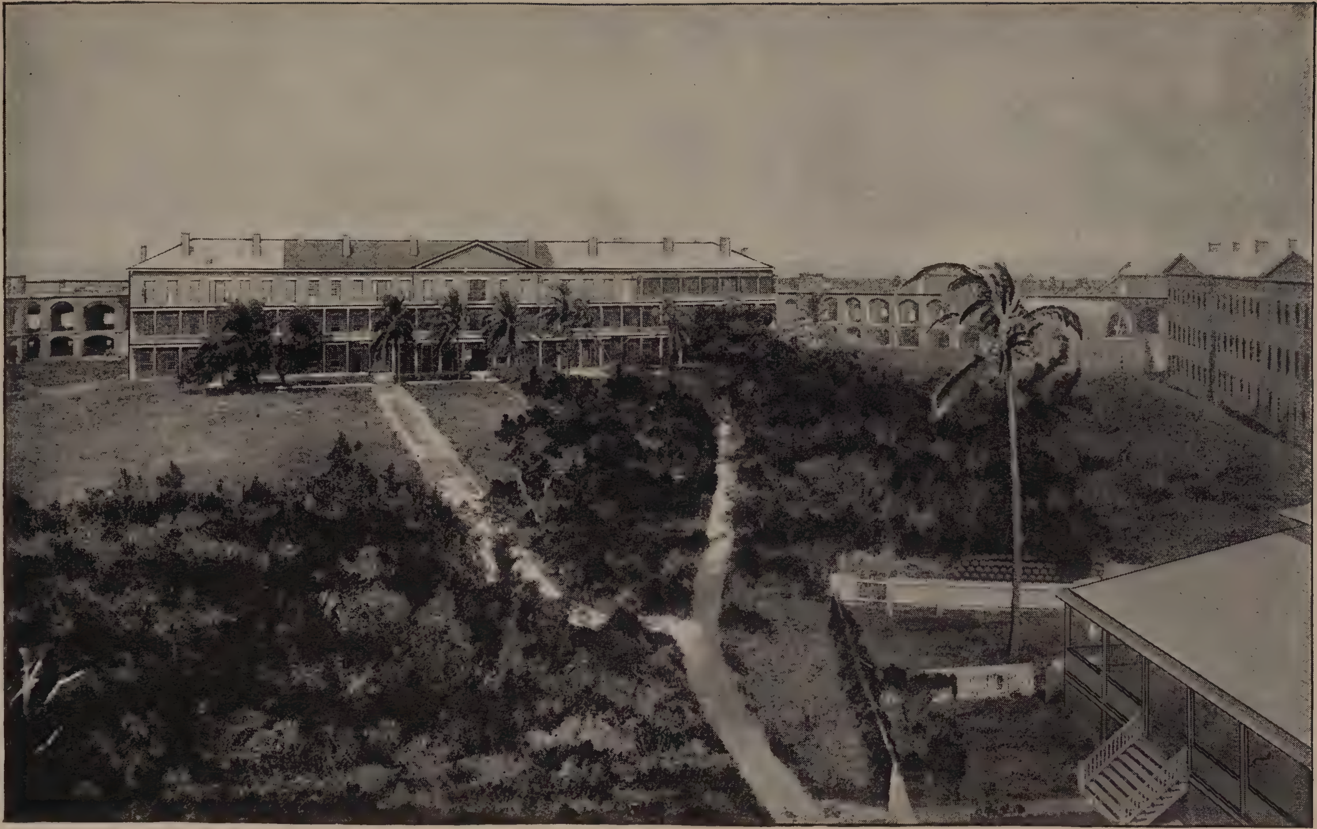
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.



PIER AND DISINFECTING SHED—QUARANTINE STEAMER FOSTER, U. S. QUARANTINE STATION, DRY TORTUGAS, FLORIDA. (VIEW 1.)



U. S. QUARANTINE STATION, DRY TORTUGAS, FLORIDA. (VIEW 2.)

light keeper's residence, ordnance sergeant's quarters, unfinished powder magazines, and numerous kitchens.

The officer's quarters is 3-storied, and contains 69 rooms; some of the rooms are unfinished; the plaster from the ceiling of over one-half has fallen down. The roof is in bad condition except a portion that has been painted four times since the beginning of the quarantine station, six and one-half years ago. The gutter from entire rear half of the building was blown down by the hurricane of 1894, and until it is renewed the roof can not be repaired.

Part of the 3-storied piazza on the front blew down in 1890, the remaining part is rotting rapidly and can not stand much longer. It is shored up in most dangerous places. Extensive repairs or a new piazza will soon be needed.

The ground floor rooms are used as storerooms and offices, being too damp for sleeping quarters.

The soldier's quarters contain some United States Army and engineers' stores, but the roofing and guttering are all in bad condition. Although the rooms are large, they are close, damp, and unfit for any quarantine purpose: a majority of the rooms are unfinished.

The casemates on lower row generally contain mounted guns or war material. The upper row of casemates were used for years as quarters for army officers and soldiers, prisoners of war, engineer employees, and others, and can supply an abundance of room for detained crews, passengers, and immigrants if necessity arises. The casemates are cool, easily ventilated, difficult of infection, and easy to clean.

The sally port is through the middle of the southeast curtain of the fort, directly out from this is the quarantine wharf—built in 1892 at a cost of about $30,000—projecting into the inner or Tortugas harbor which has an area of 250 by 400 yards.

The wharf is 120 feet long by 32 feet wide, connected with the fort by a bridge. A shed 120 feet by 24 feet covers the wharf, leaving a space of 8 feet in front.

The open space on wharf is too narrow. The wharf bridge should be roofed. On the wharf are located a 30,000-gallon tank, a storeroom, a sulphur furnace, fan, and engine, a Valk & Murdoch 15 by 8 by 8 foot steam chamber, with boiler to supply steam. The vacuum in steam chamber is produced by a steam jet constructed by Engineer Rick. It works well, giving 5 pounds vacuum in about two minutes; a heat of 105° C., and pressure of 10 pounds is produced in about one hour.

There is also a steam pump to draw water from cisterns in the fort and on the sand spit southeast of the fort; also a steam pump connected with a 2,500-gallon tank with which to wash vessels with the solution of bichloride of mercury. A steam hoister for coal and ballast is in position.

At one side of the wharf bridge is a coal shed capable of holding 150 tons of coal. Near by is an old building used as a carpenter shop, which has been fitted with gutters, and in connection with the coal shed, serves to supply a large concrete cistern on the southeast spit.

A dormitory for crews is located about 50 feet from the wharf bridge. Masters are given accommodation in the surgeon's quarters during the fumigation.

The channel into Tortugas Harbor (the fort or inner harbor) goes entirely around northeast, east, and south sides of the fort. It is three-fourths of a mile from the north entrance buoy to the wharf, and nearly as far around to the south to an anchorage on the west. The channel is tortuous and narrow, in three places less than 300 feet in width. The depth is 4 fathoms by selection, but there is a 15-foot "head" near the north entrance which is a menace to all vessels of that draft. The short turns of the channel give great trouble in handling vessels of more than 250 feet in length, and it is scarcely possible to move a 300-foot vessel without touching somewhere.

Unfortunately, the wharf is set in a recess between two sand spits, and vessels must be dropped in sidewise in order to lie alongside. The wharf is also faced so that a vessel of 300 feet length can not lie close alongside. Instead, her stern will touch the northeast corner of wharf and the forefoot will lie against the outcurve of the recess. Vessels of less than 300 feet may lie to the wharf, but the stern and bow both project beyond the ends of the wharf, and the rudders are always put in jeopardy.

It will be apparent to one used to vessels that with so short a wharf, and no room to move forward or aft, it is impossible to throw in the sulphur gas to all parts of the hold by means of the steam fan.

When the station was organized in 1888 the Light-House Establishment had a 60 by 90 foot wharf projecting out to near the present quarantine wharf. That fell down in 1893, and for the safety of vessels the piling was cut off at the bottom; but the room for mooring vessels hoped for was not obtained. At the foot of the bridge of the light-house wharf there is a building 120 by 30 feet, which is useless to the Light-House Service, and if transferred to quarantine control could be used in several ways for the public good.

FLOATING PROPERTY.

When the station was opened in December, 1888, and for some years thereafter, hired schooners were depended on for transportation of supplies, mail, and personnel. For a year and a half the steam yacht *Dagmar* was on duty here. During this fiscal year the United States quarantine steamer *Charles Foster* was transferred from Reedy Island quarantine, and performed the station work during last quarantine season. Extensive repairs have been under way on her until the 22d of June, since which time she has been ready for duty.

The advantages of the steamer *Foster* are that she is fast and powerful; contra, she is of too deep draft for a towing and docking boat in such shoals and narrow channels, and has an engine which catches on the center at every possible chance. Besides, she a great consumer of coal. The *Foster* is 91 feet long, 19 feet 7 inches beam, 11 feet draft, and registers 86 gross tons.

The schooner *Montross* was purchased in the autumn of 1893 for $2,300, for use as a ballast lighter. Repairs and improvements have raised her cost to $3,000. She is a very strong vessel of 30 tons, and in her prescribed duty has done good service, besides serving as a transport for the past eight months.

There is a 30-foot naphtha launch at the station, which is of doubtful utility from both safety and expense standpoints. Besides, there are two Whitehall rowboats and several unserviceable whale and row boats.

Personnel.—During the quarantine season of 1894 there were 2 medical officers and 2 stewards and 7 men on duty at the station besides the steamer *Foster's* crew of 7, a total of 18. From December 8 until May 1 the force consisted of 1 medical officer, 1 steward, and 8 men. After May 1 the force was increased until, by the 20th of June, it consisted of the above number of men with the crew of 6 men on the *Foster*, a total of 16.

The duties of the surgeon, steward, master, and engineer are expressed by the titles; of the remaining, 2 are cooks, 1 nurse and watchman, 2 are deck hands, 1 is fireman of *Foster*, 1 is carpenter, whose entire time has been taken up and for some time will be in repairing the steamer *Foster;* the other 5 are kept busy in the disinfection of vessels, keeping schooner and boats in condition, and repairing quarters, etc. During the winter the employees were kept constantly at work on the steamer *Foster* and building Bird Key Hospital, which, being quite a mile away, cost more in time than can be appreciated.

It is also fair to note that the winter force had to serve as seamen in turn to bring supplies from Key West, trips being made about three times a month.

The dilapidated condition of the quarters and the many articles of machinery compel sharp oversight, and all the employees possible to get can be almost constantly kept at work.

All sorts of work are required to be done—rowing, digging, painting, sailmaking, masonry, machine and engine cleaning and repairing, plumbing, carpentering, and washing, besides piloting, cleaning, disinfecting, and fumigating vessels, and ordinary sea and hospital duty.

Improvements and repairs.—(1) The piles of the rotten light-house wharf were sawed off at the bottom to give more room for vessels and to diminish the risk of injury to their bottoms, at a cost of $132.

(2) New metal-covered fender and moving piles were placed on front of wharf and two mooring dolphins driven, at a cost of $1,764.

(3) Three anchors have been put in position for moorings; two cost $83, the third cost the labor of procuring it.

(4) The foundation of the 40-year old carpenter shop was renewed by old material and labor.

(5) The engineer cistern, 18 by 38 feet, was cleaned out and roofed with old shingles at a cost of labor only.

(6) Five hundred feet of 1½-inch galvanized pipe was removed from the 53 by 66 foot parade cistern to the engineer cistern connecting with wharf tank.

(7) Six hundred feet of 2-inch galvanized pipe has been placed connecting the parade cistern with wharf tank, $73; putting up small pump to work with steam.

(8) New gutters have been put up to wharf shed to supply wharf tank, $79.20.

(9) Gutters have been put on coal shed, 50 by 30 feet, and carpenter shop, 50 by 27 feet, to feed iron tank—2,500 gallons—and from it to supply engineer cistern, at a cost of $117.69.

(10) New hoops to wharf tank, $18, and cistern for bichloride solution—2,500 gallons—$52, and for Bird Key Hospital—3,000 gallons—$55; a total of $125.

(11) Steam-power bichloride pump and fittings for washing vessels from wharf, $81.49, in lieu of overhead tank and hand pump.

(12) Steam jet for producing vacuum in steam chamber, in lieu of the diminutive and worthless vacuum pump.

(13) New hoisting rope for donkey engine, $14.28.

(14) Material for Bird Key Hospital, 30 by 34 feet, kitchen 8 by 16 feet, with 4 porches and outhouse, 6 by 10 feet, not including paint, $503.08. The labor was supplied by the station.

(15) Repairs to United States quarantine-schooner *Montross*—30 tons—new fore-rigging, new jib, new chain plates, new centerboard, hauling out, and new false keel, and repairs to metal, painted twice; cost, $211.40.

(16) United States quarantine-steamer *Charles Foster*, viz:

Repairs to metal, etc., by diver	$77.90
Boiler tubes	49.44
Repairs to coal bunkers	12.00
Circulating pump	45.00
New condenser tubes	274.28
Cementing bilges	22.50
New smokestack	152.50
New galley pipe	27.25
New boiler cover	19.23
Hauling out on ways, new brass shoe, rudder post and spindle, new rudder, and repairs to copper	569.97
Miscellaneous, painting, and various articles for repairs	552.48
Total, including some extra labor only while vessel was on the ways	1,802.55

Comments.—I beg to refer to an interesting paper on "Tortugas as a location for a quarantine," under date of September 13, 1894, by Surg. H. R. Carter, and to state that the paper so much better expresses what I think than I can that I hope it will be published and read in connection with these comments.

It is known by some that I was opposed to this site seven years ago when it was chosen, I preferring, as I had advocated for years, Fleming Key, Key West Harbor. But control off and on of this station since December, 1888, coupled with an unusual experience in marine quarantines and some observation as to the ability at present of controlling foreign pests and the decadence of Key West as a "port of call," have combined to make me a tardy but earnest advocate of this location, and in consequence puts me much in favor of making it what it can be and ought to be, a quarantine fitted to treat any vessels that may traverse the great Western Mediterranean Sea.

I submit a table of distances from Tortugas to relative points, viz:

	Miles.		Miles.
Cardenas	130	Matanzas	117
Habana	92	Cape San Antonio[1]	197
Progreso	395	Vera Cruz	780
Tampico	835	Galveston	700
Port Eads	420	Pascagoula	452
Mobile	425	Pensacola	410
Apalachicola	320	Egmont Key	178
Port Tampa	200	Charlotte Harbor	130
Key West	65	Colon	1,020

These places and figures, in conjunction with the accompanying map and Surgeon Carter's report on the location, will give a person a better idea of the proximity of Tortugas to Cuba and its relation to the Gulf ports than can usually be procured from charts. The preceding list of ports to which vessels sailed from here shows that the eastern Gulf has taken full advantage of the chance to avoid infection, as well as to receive quarantine treatment.

During the quarantine season of 1889—the fiscal year not meant—one vessel from Galveston via Key West for New York was treated; a case of smallpox removed, which recovered.

During 1890, 3 vessels called, of which 2 were treated.

During 1891, 4 vessels called, of which 3 were treated, 1 refusing to submit.

In 1892, 2 steamers and 1 brig were attended to. The occurrence of yellow fever on the brig perhaps deterred other vessels from coming, as the case was too well published.

During 1893, 21 vessels were treated, of which 2 had cases of yellow fever.

During the season of 1894, 37 vessels, 6 of them infected, having 11 cases of yellow fever, were treated.

For the two months of the season 1895, 20 vessels have been given attention, 1 having yellow fever and 1 a convalescent smallpox case.

It will be observed that three seasons passed before the station was well known to exist and that the increase for two years bids fair for a sufficient number of vessels to warrant the completion and continuation of it.

The relation of position of this station to Habana, south side of Cuba, Colon, and Vera Cruz gives best attainable chances for vessels to get relief if infected, and there is no reason why vessels of any nation should not stop here, even if bound to other than United States ports. There is no other location so well suited for an international quarantine against yellow fever, and without orders to the contrary the courtesies of the station will be given to vessels under any flag.

If the intergulf and Pacific canals, or either of them, are ever completed the importance of this quarantine will be increased.

It is not an idle dream that the more or less complete quarantines at Tampa Bay, Pensacola, Mobile, Ship Island, New Orleans, and Galveston are abolished and substituted by reliable inspection stations, all the quarantine work for the Mexican Gulf being relegated to and done at Tortugas. The question of towing vessels which are known to be dangerous must be thought of, but it is not true that towing costs as much as quarantine. The detention quarantine at Mariel is scarcely worth considering.

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[1] The light on Cape San Antonio, on western extremity of Cuba, must be seen by every vessel coming from the Caribbean Sea, or from South America or the West Indies by way of the south side of Cuba.

Violations.—The law relative to foreign-port vessels procuring duplicate bills of health has been violated twice, once in 1893. Due report of the matter was made, but a misapprehension of the district attorney as to what constituted a port permitted the vessel to get away, and before she reached her final port she, with all hands, was lost. The other occurred last season. The master of a schooner leaving Habana without them insisted on his arrival here that they would come by mail. Thus no report was made and the master and vessel have thus far escaped merited punishment.

Trespass.—In 1893 one Key West fishing schooner was compelled to undergo fumigation, disinfection, and detention in penalty for an unallowed visit to a noninfected vessel for the purpose of selling fish. All proper exchanges of fish or other food for money may be made under the scrutiny of the officer in charge.

On the 20th of May last the only sail and sea boat at the station was stolen by two of the crew of a British vessel. Warrants were promptly sued out for their arrest but failed to be served, as neither boat nor men have been heard of for nearly two months. It was hoped by these men to drift south and be picked up by a passing vessel, and it is probable that they succeeded.

If the character of the station was as well known as it is hoped it will be in the next ten years the vessel succoring such escaped seamen will very likely bring them back here or stop at Key West or Habana, or, at least, make report on reaching her destination.

In 1893 five men from one vessel escaped to Rebecca Shoal Light, 16 miles to the east, and in 1894 one escaped to Loggerhead, 3 miles west, all in ship's boats, but all were captured in quick time.

There is a minimum of danger, however, of crews trying to run away from here, and the precautions to prevent the deviltry of "sailor runners," necessary at some stations, are useless here.

State relations.—The relations of this station—with Florida principally—have been amicable and harmonious.

The general and special rules of all States are carried out implicitly, so far as known, as was my custom when national quarantine was much less thought of than it is to-day.

Lately the propriety of laying a cable to Tortugas to serve as a storm forecaster was suggested in the press; many times the same suggestion has been made in the interest of commerce and wrecking.

As a cable will cost over $60,000, and the yearly waste and expenses will be over $7,000, I can not think a cable worth the cost or of much utility in any case.

The families of such attendants as are married are allowed to live in the fort. This conduces to the comfort and peace of mind of the men and to permanency of their service. There is no reasonable objection to the custom.

The service has done much in favor of the keepers of the three lights, Rebecca Shoal, Tortugas Harbor, and Dry Tortugas, by bringing supplies, etc., and carrying them and their families to and from Key West. The Fort Jefferson ordnance sergeant has also been accommodated in the same manner to the saving to the War Department of from $840 to $1,200 per year.

Recommendations.—(1) I have to recommend the building of a 40 by 20 foot hospital, with side piazzas, a kitchen, outhouse, and dispensary, on the southeast spit, at a cost of about $1,100.

(2) A boathouse, 35 by 30 feet, projecting into the sea on iron piles, at a cost of about $1,000, to include winches and hoisting gear. This structure has been needed ever since the station was opened.

(3) A wharf on the extremity of southeast spit, 16 by 64 feet, with supporting dolphins and appropriate hoisting gear and track for discharge of ballast, at a cost of

about $8,000. This wharf is needed to enable stone and cobble ballast, which is sometimes taken in excess, to be discharged and retained until another season, when it may be used to replace sand ballast which may have to be discharged. By arranging for washing vessels from this wharf the sulphur and steam wharf will be relieved of the presence of vessels promptly and the capacity of the station as at present constituted be doubled.

(4) A staunch, light-draft, centerboard schooner, built with good-sized cabin and wood and coal capacity, for carrying mail and supplies. It is perfectly feasible to supply the station by means of a sailboat, and also to avoid obstructions at Key West when pests are present at the fort.

(5) The greatest need of all, superseding the need of the present disinfecting wharf, is a large iron hull barge 200 feet in length by 40 feet in breadth, fitted with all necessary cleaning apparatus, to be located at a point indicated on the small chart of Tortugas Harbor. It would have been well in the beginning of the station to have made the wharf about four times its present size and to have placed it near the 7-foot shoal west of the fort.

With a complete and sufficiently large fumigating barge, one constructed for the purpose and not a patched-up makeshift, the station can treat, with slight addition to the working force, from 2 to 5 vessels per day—say from 250 to 300 vessels per season. The arrival lately of two large steamers, and my experience in bringing large vessels through the intricate channel in untoward wind, proves the unfitness of the station to properly and promptly attend to such vessels. With a barge such as I have in mind all the Gulf traffic steamers will call here, but if no change is made no master will return to incur the risks once gone through. As previously stated, vessels of 300 feet length or more are practically excluded from the service of the wharf machinery, and all plans for enlarging the wharf will not overcome all the difficulties; as if the warf is made, say, 400 feet long, the harbor will be about closed up and the channels will remain as narrow and deceiving as they have ever been. To prepare for steamer trade there must be a tideless, always head to the wind, and movable arrangement. What will serve the largest vessels will do for the smaller ones, but not vice versa. A proper barge should be built and outfitted for $35,000.

(6) The schooner *Montross* needs a new windlass and should have a wheel steering gear instead of the tiller.

(7) A roof should be placed over the wide portion of the wharf bridge next to and abutting onto the wharf shed to give some shelter while steaming clothes and to prevent the clothing and bedding from getting wet, as well as to facilitate the escape of steam from them on rainy days. This shed should be 17 by 47 feet, 7 feet to plate; cost about $250 for material; station labor.

(8) Four large anchors should be placed on the east side of the channel to aid in warping in vessels, as recommended two years ago.

(9) I have to suggest also that the official name be changed to Tortugas United States Quarantine to avoid the mistakes in mail and freight delivery that will occur at Key West, and to prevent any misunderstanding in the minds of masters, owners, and agents as to what is meant by "Key West Quarantine," there being a local quarantine at Key West.

(10) I have also to suggest the adoption of a distinctive United States quarantine flag: A yellow field with a blue union. There will be no doubt in the mind of any sailor as to what is meant by such a flag. Moreover, it is prettier than the full yellow field.

Respectfully submitted.

R. D. MURRAY,
Surgeon, Marine-Hospital Service.

SURGEON-GENERAL,
Marine-Hospital Service.

GULF QUARANTINE—LOCATION, SHIP ISLAND, 12 MILES OFF BILOXI, MISS.

REPORT OF THE TRANSACTIONS OF THE GULF QUARANTINE FOR THE FISCAL YEAR ENDING JUNE 30, 1895.

SIR: In reply to Bureau letter of the 22d instant, directing me to forward a report of the transactions of this station for the fiscal year ending June 30, 1895, to be incorporated in the annual report of said year, and to contain certain specified information, I have the honor to reply as follows:

During the period covered by this report 71 vessels called at this station, divided into the following three classes, according to the action taken in each case:

Disinfected and detained for observation	33
Inspected and passed	37
Spoken and passed	1
Total	71

Three cases were treated in hospital during the fiscal year and three cases received office treatment. There were no cases of yellow fever, or other contagious or infectious disease.

The gulf quarantine is situated near the eastern end of Ship Island, and lies about 10 miles almost due south of the city of Biloxi, on the mainland.

The buildings comprising the station are divided into two groups, separated from each other by a small sheet of water, known as the Lagoon. On the southwest side of this lagoon is the executive building, containing the main office, dispensary, acting assistant surgeon's, hospital steward's, and attendants' quarters, and also the kitchen and dining room. This evident overcrowding will be referred to later.

From the front of the executive building a board walk leads out to near the shore line, and from that point is continued out over the shallow water for a distance of 900 feet, this great length of wharf being necessary in order to obtain a sufficient depth of water for the landing of small boats. This wharf, or, better, gangway, is 6 feet wide and 8 feet above mean low water.

In front and on each side of the executive building are two small structures, used for storerooms. They are roughly built, but are made presentable by frequent whitewashing.

A short distance from the executive building, and on either side of the board walk, is a flagstaff—one 80 feet in height, for flying the national ensign and for signaling; the other 50 feet, for the quarantine flag.

Behind and to the right of the executive building is situated the laundry and carpenters' shop.

On the banks of the lagoon, and on the same side with the executive building, and distant from it about a quarter of a mile, is the boathouse, to which is attached a pair of marine ways, for hauling up boats for repairs, painting, etc.

On the other side of the lagoon, that is, on the northwest side, and distant from it about 400 yards, is the commanding officer's quarters.

This building, as well as the executive building above mentioned, was built over fifteen years ago by the National Board of Health, and remained standing after the storm of October 1, 1893, but in a wretched condition. Both buildings have been repaired and almost renovated so as to answer in a measure the purpose for which they are now used.

The new hospital for the accommodation of those suffering from contagious or infectious disease is now under construction, and will soon be ready for occupancy. It lies about midway between the lagoon and the quarters of the medical officer in command.

The disinfecting plant at this station is essentially a floating one. It is the only method which could be adopted here, and I am not sure but that this plan is as good, or perhaps better, than a stationary plant. It gives less opportunity for communicating disease from one vessel to another, and it keeps the masters and crews on board their own vessels while in quarantine, thus lessening the chances of infecting the station.

The disinfecting plant consists (1) of the disinfecting tug *Wm. H. Welch*, 104 feet long and 13 feet beam. This vessel contains two iron tanks connected with a pump, for washing out vessels with mercuric chloride solution; also a sulphur furnace, with Sturtevant fan and engine to run the same. The furnace, however, is of an old pattern, and within the last few months has become totally unfit for use.

(2) The barge *Zamora*, 116 tons burden, having on board a complete disinfecting plant of recent type, consisting of a steam chamber for the application of moist or dry steam to clothing, bedding, etc., a bichloride tank and pump, a sulphur furnace with exhaust fan and engine for same. This engine seems to me to be too small, and I do not think it will last long. The vessel is also supplied with a boiler to obtain the steam necessary for running the disinfecting apparatus.

(3) In addition to the two vessels above mentioned, the station is equipped with three barges or scows, one used for storing coal for the tug *Welch*, another for unballasting vessels in quarantine, and the third, called the "transfer barge," to serve as the connecting link in communicating between the station and the outer world.

The station is also supplied with a number of small boats, the two largest of which (the naphtha launch and a whaleboat) are used for boarding purposes and as means of communication between the buildings on either side of the lagoon.

The naphtha launch is 25 feet long, and it is to be regretted that it is not longer by 10 or 15 feet, as the sea, at times, is too rough for such a small one, making it impossible to board vessels in bad weather. I would recommend that a larger one be supplied to this station.

The executive, professional, and sanitary duties of the station are at present conducted by a passed assistant surgeon in command, an acting assistant surgeon, and a steward of the first class, with a crew of 15 men, 6 of whom are the crew of the steamer *Welch*, with rank and duties as follows: Pilot, engineer, 2 deck hands, 1 fireman, and 1 cook. The remaining 9 attendants are usually detailed for duty as shown in the appended list, although their duties are at times changed to meet certain exigencies.

Head boatman: To look after all boats and report to the officer in command or hospital steward their condition; to manage naphtha launch and whaleboat. Carpenter: To make repairs to buildings, boats, furniture, etc. Boatmen (4): To assist in managing launch or whaleboat, to assist in the disinfection of vessels, to act as nurse or night guard when required, to paint and clean boats, to keep outside of buildings and surroundings neat and clean, to keep a lookout for vessels entering quarantine, and to man the lifeboat. Cook, laundress, messenger: To clean and keep in order office, dispensary, and halls in executive building, and to act as messenger between the latter and the surgeons' quarters.

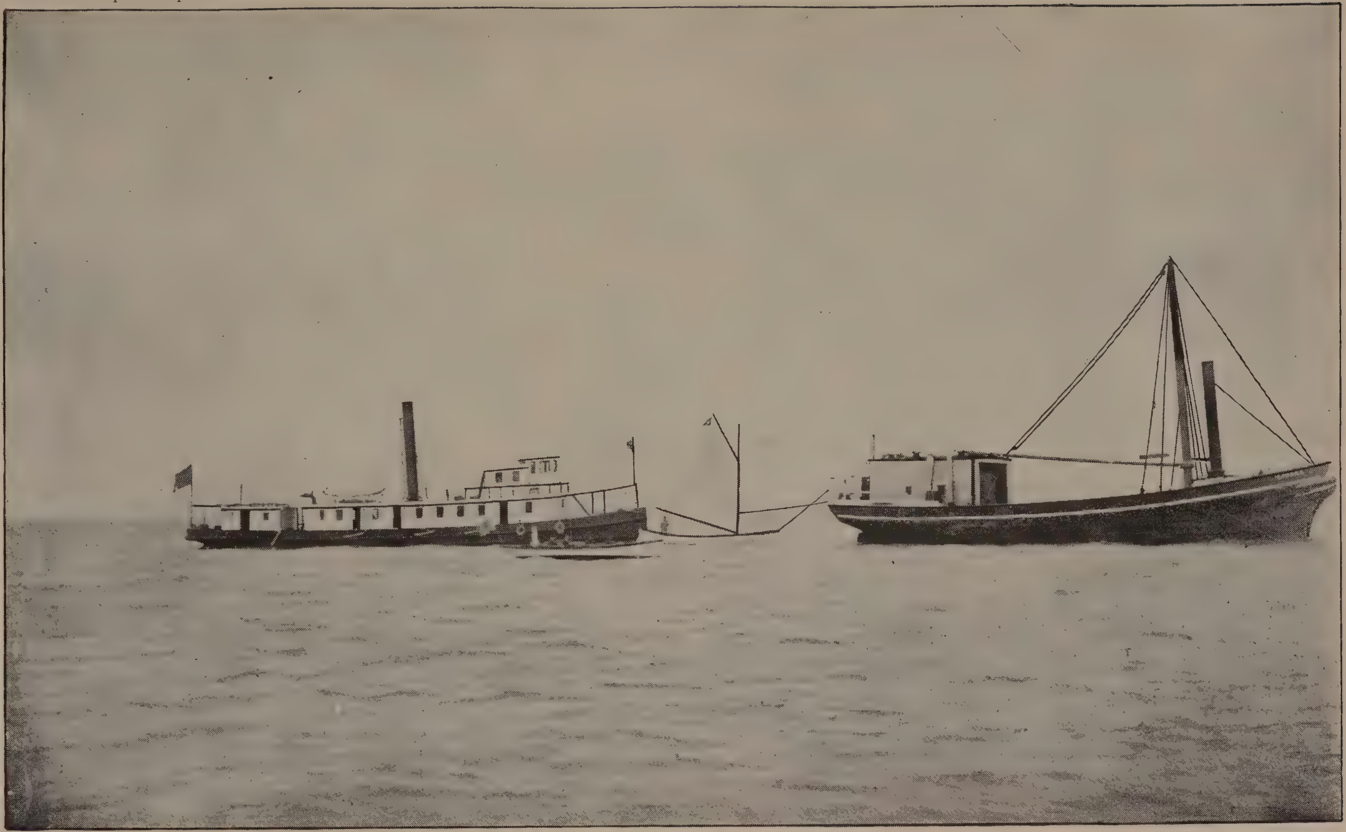
During the fiscal year covered by this report, the following additions and improvements were made, most of the work mentioned being done by the hospital attendants.

The medical officers' quarters and the executive building were thoroughly repaired from the allotment of $1,000 of May 1, 1894, of which all but $17.98 was expended, as follows:

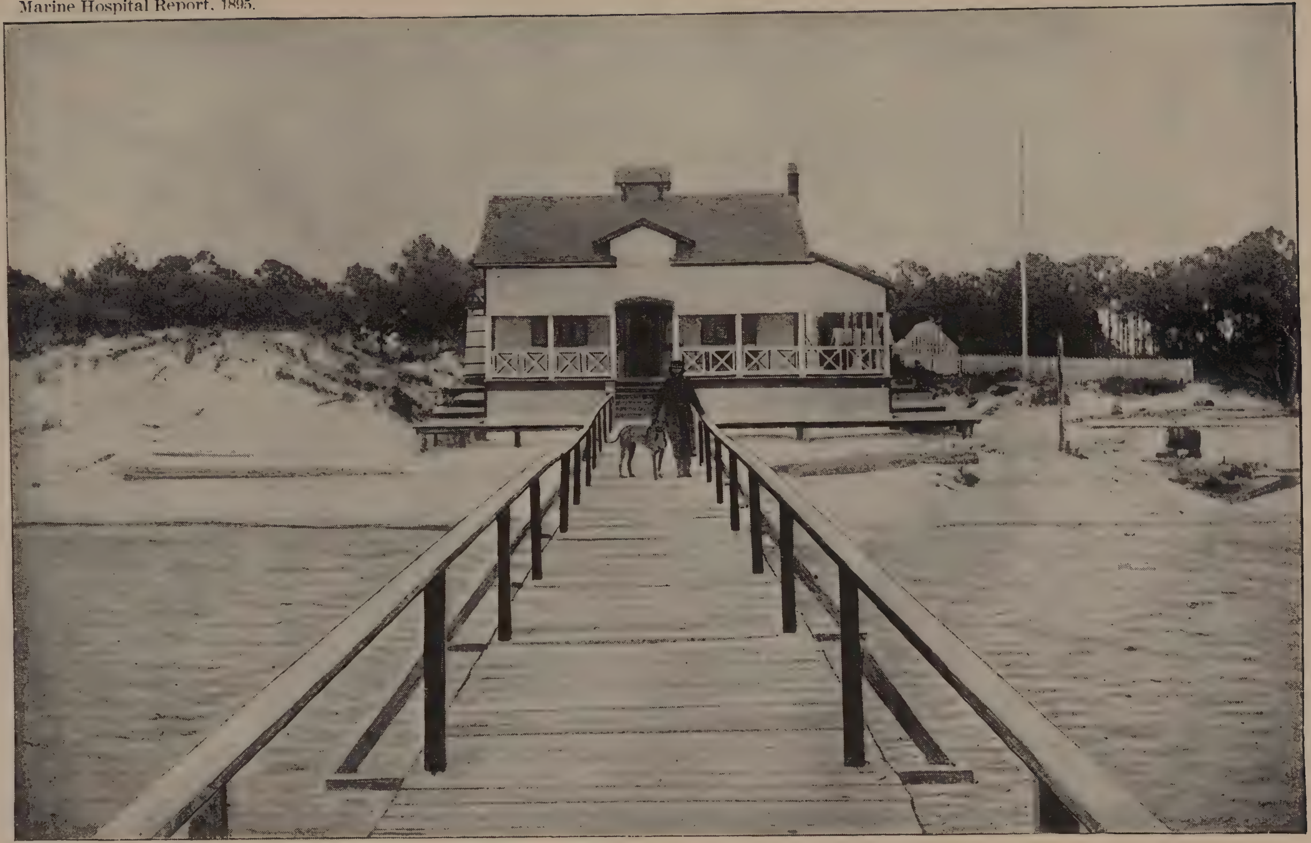
H. Lienhard, for lumber, etc	$706.50
Elder & Bradford, shingles	24.00
Salaries of carpenters	251.52
Total	982.02

The machinery designed for the barge *Zamora* was received, the freight and drayage on the same amounting to $144.20, and transferring the same from Biloxi to Ship Island involved an additional expense of $25.

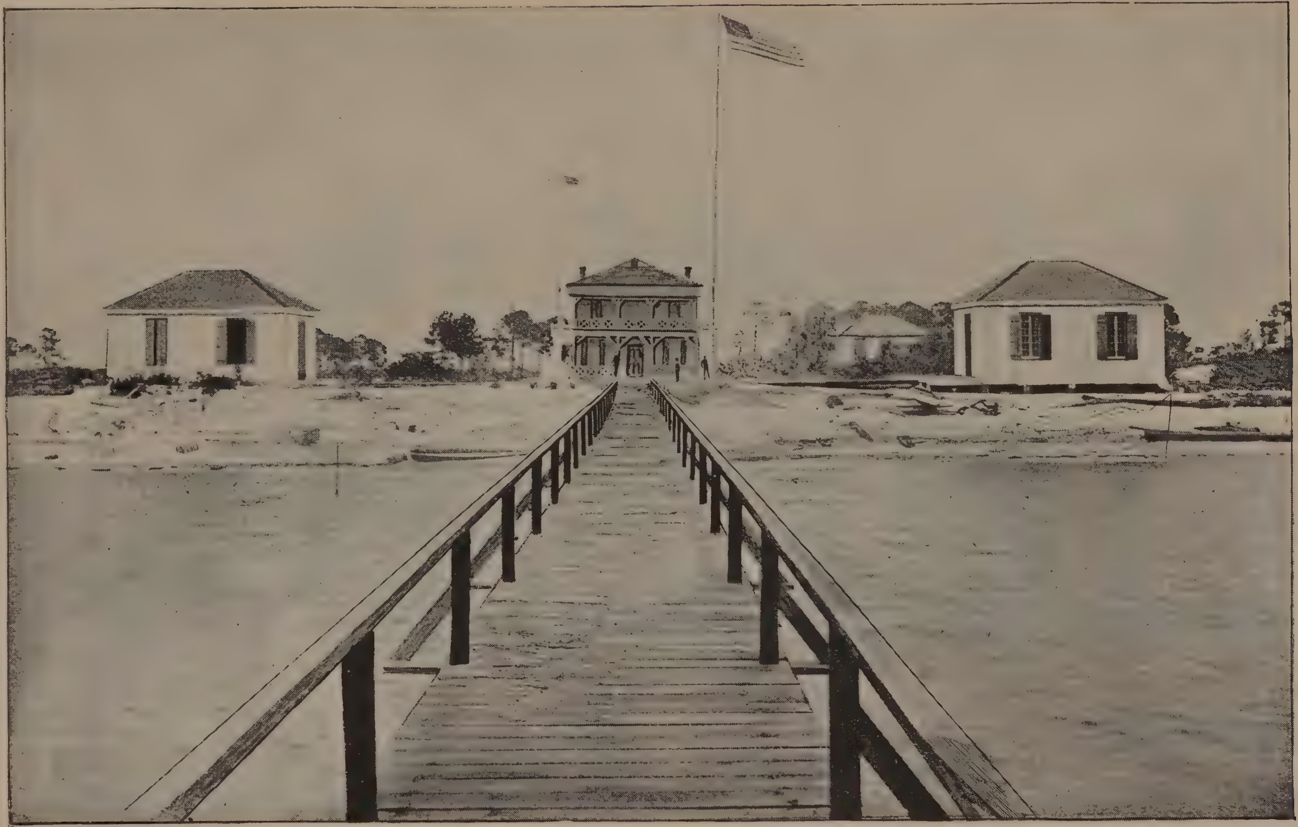
U. S. QUARANTINE STATION, SHIP ISLAND, MISSISSIPPI. (VIEW 1.)



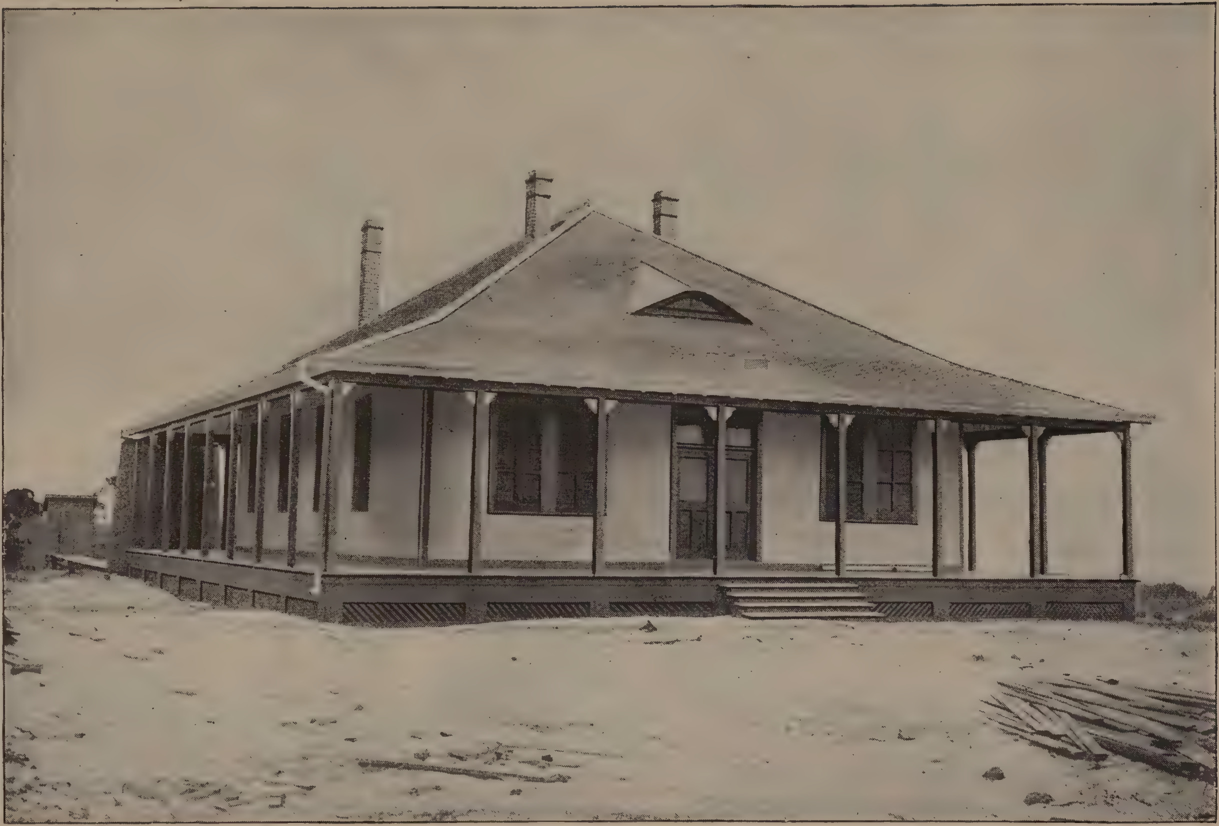
FUMIGATING STEAMER WELCH AND DISINFECTING BARGE ZAMORA, U. S. QUARANTINE STATION, SHIP ISLAND, MISSISSIPPI. (VIEW 2.)



MEDICAL OFFICER'S QUARTERS, U. S. QUARANTINE STATION, SHIP ISLAND, MISSISSIPPI. (VIEW 3.)



EXECUTIVE BUILDING, U. S. QUARANTINE STATION, SHIP ISLAND, MISSISSIPPI. (VIEW 4.)



NEW HOSPITAL, U. S. QUARANTINE STATION, SHIP ISLAND, MISSISSIPPI. (VIEW 5.)

A cypress tank of 1,000 gallons' capacity, to be used for the mercuric chloride solution, was purchased for the same vessel, at a cost of $49.20.

The whaleboat was fitted out with a new set of sails, at a cost of $20.80.

A new smokestack was purchased and set in place on the barge *Zamora*, at a cost of $79.75. The same was lost when the *Zamora* went ashore at this station during a severe storm.

During the winter the barge *Zamora* was thoroughly repaired, copper-bottomed, new smokestack put in place, etc., at a total cost of $1,000, by Joseph Council, of Scranton, Miss., the lowest bidder for the work.

A new cooking range, with connections, was purchased from Rice, Born & Co., at a cost of $85.

The following named articles were purchased from Woodward, Wight & Co.

A Whitehall boat	$75.00
A lifeboat, capable of holding 20 persons	125.00
24 cork life-preservers	20.40
A spirit compass (liquid)	30.00
1 mushroom anchor (1,000 pounds), with 60 fathoms of cable chain seven-eighths inch in diameter	170.80

The last-mentioned article was for the barge *Zamora*.

A new flagstaff 80 feet in height, for flying the national ensign, and another staff for the quarantine flag were made and put in place by the hospital attendants, at the small cost of $7.05 for the necessary rings and bolts.

The steamer *Welch* was hauled up on the ways, her bottom scraped and painted, and other repairs made by Peter Blanchard, of Scranton, Miss., at a total cost of $243.50.

The old roof covering the hallway in the medical officers' quarters, which was leaking badly, was repaired at a cost of $19.50, a tin roof being substituted.

The material for two landing wharves, 900 and 720 feet, respectively, was purchased of H. Lienhard at a cost of $330.62. Shingles and weatherboarding were purchased from H. E. Latimer at a cost of $148.50. This material was employed in roofing the two storehouses, the boathouse, the carpenter's shop, laundry building, and the front part of the medical officers' quarters.

A new ballast scow was purchased at a cost of $912.90. The amount of $8 was expended on an extra pump and hawser pipe, which were found necessary for the new ballast scow above mentioned.

Most of the above work was done by the hospital attendants, a few extra carpenters being employed from time to time.

A boat landing was erected on the north side of the lagoon made from driftwood found upon the beach, the labor being supplied by the attendants. An old cistern was put up back of the laundry to supply water to the same.

All buildings were painted excepting those the outside of which consisted of rough lumber; these have been repeatedly whitewashed.

A fumigating closet was constructed at one end of the laundry building for the purpose of fumigating the mail and clothing and other articles which were to leave the station.

The relations between the Gulf quarantine station and the State and local quarantine authorities, with which it comes in contact, have been fairly good, but never cordial; a spirit of unnecessary criticism and hidden antagonism always existing; no attempt ever being made by them to assist or act in concert with the national quarantine. This, however, has in no way impaired the reputation of the national quarantine. The people of the adjoining coast, especially east of New Orleans, are heartily in accord with the Gulf quarantine, believe in its efficiency, and have no faith whatever in their own local quarantines, which they consider simply as parts of a political machine, offering an opportunity for the spending of the people's money and creating places to be filled by successful political candidates. In this connection I beg to report that rumor has it that a strong effort is to be made by the health authorities of the State of Mississippi to erect a quarantine plant, presumably on Round Island or Horn Island. The object of this is apparent, and has no connection with any enthusiastic desire to protect the adjacent coast from the danger of the entrance into the United States of infectious disease, as is evidenced by the fact that this sudden interest in quarantine matters has only originated since the promulgation of the order of the honorable the Secretary of the Treasury that all vessels from infected districts bound for the port of Pascagoula must be provided with a certificate of free pratique from a national quarantine station before being admitted to entry.

At the beginning of the fiscal year there was some slight friction with the Louisiana board of health, concerning two small vessels bound for New Orleans and disinfected at this station. This board wrote in a rather impertinent manner asking that they be informed as to the minutest details of the disinfection practiced on these vessels—both vessels, by the way, coming from healthy ports, and with clean bills of health from the American consul—but as they came from within the tropics an ordinary disinfection only was deemed necessary.

The medical officer at this station did not deem it advisable to give the desired information, to do so being considered as a reflection upon the bureau and the officer whom it had detailed for duty at this station. The Louisiana board of health was therefore informed that, for any further information than that given in the certificate of free pratique, they would have to address themselves to the Surgeon-General of the United States Marine-Hospital Service.

The blind and willing ignorance of all the local quarantines (as for example the Mississippi River quarantine), as regards the facilities of this quarantine station would be amusing were it not also annoying to the officers connected with the latter, and a direct detriment to shipping.

The facilities for the actual work of disinfection at this station are, in my opinion, as good as any. By this I mean that a vessel can be as thoroughly disinfected and cleaned here as at any quarantine station of which I have any knowledge. There may be some that, from the nature of their surroundings, may be able to do their work with greater neatness and dispatch, but none that from a purely sanitary point of view as regards the ultimate results can accomplish the work better.

While there is no doubt that under present conditions Ship Island presents the best location for a quarantine plant for the protection of the Gulf coast from New Orleans to Pensacola, yet it has its disadvantages, the most important among them being its proximity to the nearest mainland, and the fact that the quarantine anchorage lies in a thoroughfare used by many small boats and steam tugs, which fact renders it difficult to keep trespassers at a proper distance. With regard to the propinquity of the mainland I may say that it is dangerous only because disaffected sailors have frequently escaped from shipboard, either in a raft or in some of the ships' boats, and thus gained the mainland. In order to guard against these disadvantages, constant vigilance is necessary, and a larger force of men than would otherwise be required. To insure against any chance of communication with the shore it is the custom at this station to have an armed guard on every infected vessel while undergoing disinfection.

In conclusion, I have the honor to make the following recommendations:

The quarters are insufficient, are crowded at present, and yet the number is smaller than it should be for the purpose of properly manning the station. The plan for improving this condition suggested by Surgeon-General Wyman while inspecting this station in May, 1895, is decidedly the best. It consists of the construction of two additional buildings on the southwest side of the lagoon, one to be used as quarters for the medical officer in command, the other to be the attendants' quarters. This will leave the present executive building to be used for the office, dispensary, kitchen, pantry, and steward's quarters; the present medical officer's quarters to be used for the accommodation of suspected cases, or for the purpose of isolating the crews and passengers into groups, so as to resist as much as possible the spread of the disease. This building is on the same side of the lagoon as the new hospital, now nearing completion, but sufficiently removed from it so as to exclude the danger of infecting one from the other. In this way all infection will be, as much as possible, on the northeast side of the lagoon, while on the southwest side will be the officers' quarters, the executive building, the steward's quarters, office, storerooms, laundry, etc., free from infection.

A rigid system of personal disinfection being imposed on all those who are compelled to visit the hospital or isolation building before they return to the south side of the lagoon will keep the quarters and the administration building free from the danger of infection. The new buildings advocated above, and the general arrangement of the station which will be possible after they are constructed, will be of great value to the station, not only for the reason noted above, but also because it will bring the commanding officer's quarters closely in contact with the administration building. Their separation, as at present, on either side of the lagoon, leads to many difficulties, discomforts, and loss of time. Even should the above plan be approved and ultimately carried out, it may be some time before the work can be concluded, and I would recommend that the executive building and the present medical officer's quarters be connected by telephone, the usefulness of which would not be temporary, for later, after the above plan is carried out, it will still be of great value in communicating between the executive building and the hospital for contagious diseases, thus rendering actual communication with the same as little necessary as possible.

The sulphur furnace on board the *Welch* has become totally unfit for use. It would be well, I think, to condemn and remove the furnace, or, if it be considered advisable, to replace it with one of more recent type.

In the description of the station given in the beginning of this report, I omitted to state that there are two sets of water-closets, situated one on either side of the executive building and slightly in front of it. They are among the first features of the station which strike a stranger. They are ungainly to the eye and there is nothing to hide their bareness or to mystify anyone as to their use. I would strongly recommend that they be removed, the vaults filled up, and two new ones placed in the rear of the building.

The barge *Zamora* requires some improvement for the proper protection of the machinery, and for facilitating the work of disinfection. I would recommend, therefore, that the present house be widened so that the walls of the same will reach out to the bulwarks, and extended fore and aft a distance of 13 feet. This will protect all the machinery as well as the clothing when brought out of the steam chamber in wet weather.

I would further recommend that the roof of this enlarged house be covered with tin and surrounded with gutters so inclined as to deliver rain water into the tank used for the *Zamora's* boiler.

A number of repairs will be required on the *Zamora*—for instance, the caulking of the deck—but these can be done by the hospital attendants later in the season. I would further recommend that an artesian well be driven at some convenient point near the executive building. During the last two years great difficulty has been encountered in keeping up a sufficient amount of water for drinking and culinary purposes. At times it is necessary to give up washing for lack of water.

The above is a résumé of the transactions of this station during the fiscal year ending June 30, 1895, and of the improvements, repairs, and alterations which it is believed will add to the efficiency of the station and to the credit of the Marine-Hospital Service.

Respectfully submitted.

G. M. GUITÉRAS,
Passed Assistant Surgeon, Marine-Hospital Service.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

SAN DIEGO QUARANTINE, SAN DIEGO, CAL.

REPORT OF MEDICAL OFFICER IN COMMAND.

NATIONAL QUARANTINE STATION,
San Diego, Cal., July 23, 1895.

SIR: Replying to yours of date June 22, 1895, I have the honor to submit herewith the following report of the operations of this station for the fiscal year ending June 30, 1895:

The number of vessels inspected and passed was 110; the number of vessels spoken and passed was 5; making a total of 115. The only patients treated at the station have been the employees, for minor injuries and complaints—the cook, who was confined to a bed in the hospital for two weeks with an attack of remittent fever, and one officer aboard the light-house tender *Madrona*, who was given emergency surgical attention for injuries received while assisting in hoisting a large iron buoy near the station.

The attendants of the station are three in number, with one cook, who also acts as laundryman. The station is in charge of an acting assistant of the Service. The regular duties of the attendants are divided up as follows:

One is assigned to duty as engineer who is required to keep the engine and machinery aboard the quarantine launch in good condition and repair and in readiness for her trips outside to the anchorage of incoming vessels and to the city for mail and supplies. A second employee is assigned to duty as pilot and seaman to assist in handling the launch and keeping her clean and in good condition, to act as boatman in conveying the quarantine officer in a small boat from the launch to vessels, most all of which have to be boarded outside the harbor, where it is always unsafe to approach a vessel with the launch.

To the third attendant is assigned the regular duty of caring for the stock about the stable, to act as watchman, he always remaining to look after the station when the others are absent on quarantine duty or on the regular trips for mail and supplies. He being a ship carpenter and supplied with a set of tools, makes all needed repairs of this nature to the quarantine vessels, the wharf and quarantine buildings; and having had some experience in nursing the sick, can also act as night nurse under ordinary circumstances. All the employees are required to join in the general cleaning up of the buildings and grounds preparatory for the regular weekly inspection. They are also, when not engaged in the performance of their regular duties, kept busily employed about the station in assisting in the general work of repairs and alterations, in painting, whitewashing, cleaning, repairing, and painting the quarantine vessels, changing and repairing the moorings, etc.

A general description of the station, buildings, and equipment, as completed under the original appropriation, has been given in previous reports, and may be found on page 72, "annual report," for the fiscal year ending June 30, 1892. However, a brief repetition of the same is herewith submitted, together with a description of additional improvements which have been made since the publication of the last annual report.

The quarantine station is situated about 6 miles west of the city of San Diego, on a small sandy point near the entrance of the harbor. To the west and immediately back of the station, a high sandstone bluff shuts off the ocean, and is a partial protection from the raw northwest winds in winter. The station buildings and equipments, as completed under the original appropriation of the act of Congress in August, 1888, consists of a medical officer's quarters, a cottage hospital with ten beds, a boathouse and wharf, and boatmen's quarters, and a warehouse on the wharf for the reception of the disinfecting machinery. The wharf, gangway, warehouse, and boathouse; are built on iron-cased piling. The gangway leading to the wharf is 12 feet wide and about 500 feet long; the wharf is 24 feet wide and 123 feet long, the frontage of the wharf having a depth of 25 feet of water at mean low tide.

A laundry and coal room has since been constructed by contract at a cost of $1,694. This building, like the others, is built of wood; in size, is 21 feet wide by 56 feet 6 inches in length, is placed upon a foundation of 24 piles 10 inches in diameter driven into the sand 6 feet deep. The laundry room, which is in front, is 21 feet by 30 feet 6 inches, is supplied with a battery of 12 stationary wash tubs and a "Wilks hot water heater" capable of heating 120 gallons of water to the boiling point every hour. The station is supplied with fresh water taken from the San Diego Water Company's mains, under a heavy pressure. There are two fire hydrants on the grounds, and two on the gangway leading to the wharf. There are two hose reel carts and 450 feet of fire hose. A telephone line has been constructed from the quarantine station to a connection with the city telephone system, a distance of about 9 miles. This line is kept in repair by the employees of the station. Since the completion of the quarantine buildings, the work done by the employees has been, first, to cut away and burn the dense growth of dry brush immediately surrounding the station, as a precautionary measure against danger from brush fires, which are of such frequent occurrence here during the dry season. The grounds have also been graded and inclosed with a good substantial board fence. Twelve hundred feet of good 2-inch board sidewalk has been built; a platform, landing, and stairway constructed for the launch to land supplies at. The wooden piles at the shore end of the gangway have been protected with a casing of Portland cement; the quarantine vessels taken out of the water, scraped, repainted, and varnished; the moorings have been changed, and a new mooring put down at the water front at the city to avoid the payment of dockage. A small stable and cow shed has been built, and the stable, and the fence around the grounds neatly whitewashed.

The work of improvement, repairs, etc., made during the fiscal year ending June 30, 1895, and the cost thereof, is as follows: A small stable and cow shed has been built, and a ways for taking the launch out of the water, at a cost for material of $100.

The water mains have been extended to the stable and to the south side of the surgeon's quarters, at a cost of $11.85 for material.

The outside walls, the roofs and the outside blinds of the buildings have all been neatly painted, at a cost of $227.05 for material.

The roofs of the buildings have been repaired at a cost of $6.85 for material, and the wooden piling at the shore end of the gangway have been protected from destruction by the tornadoes by a casing of Portland cement at a cost of $13.45 for material, the work having all been done by the employees of the station. No regular sanitary inspection of vessels arriving at this port was made previous to the establishment of a national quarantine service. The city health officer who is appointed every two years by the city board of health, from among the practicing physicians of the city, and who is also permitted to attend to his private practice while holding the office, was also expected to act as quarantine officer of the port in times of emergency.

Neither the State nor the city owned any quarantine buildings or appliances of any kind for the treatment of infectious diseases or the disinfection of vessels. The port of San Diego is the only safe harbor on the California coast south of San Francisco, and with the completion of the Government jetty, which is now being rapidly constructed, will be the safest and easiest on the Pacific Coast for vessels to enter.

She will soon have a direct eastern outlet by two different transcontinental railroads, both running below the snow line for their entire distance, either of which will shorten the journey across the continent by twenty-four hours and the Pacific voyage to the Orient, compared with the port of San Francisco, by 500 miles. Therefore it may be seen that San Diego is bound to soon assume her place as the principal seaport of the southwest. Southern California already possesses the second largest city in the State, situated but 90 miles inland and connected by rail with this port, while the whole southern portion of the State is developing rapidly and increasing in wealth and population; and these large interior cities and towns are equally interested with San Diego in her maritime quarantine station, the southernmost national quarantine station on the Pacific Coast of the United States, which, on account of its position, is bound to become one of great importance in the very near future, as "with the new awakening of commerce in what was the once practically deserted waters of the Pacific," she will be the first station of refuge to be reached by pest-stricken vessels from the south. The erroneous popular belief that the habitat of yellow fever, is confined to the Atlantic Coast of Central America, the Gulf of Mexico, etc., has received a serious setback by the recent epidemics of this disease in San Salvador and Pacific-Mexican coast ports. Any person being the least skeptical on this point can gain information by reference to a most excellent article on the subject by Dr. Edward Stubburt, chief surgeon Nicaragua canal, which may be found in the New York Medical Record of date May 25, 1895.

He says: "Natives of this country will tell you that not only is yellow fever known and of frequent occurrence on the Pacific Coast, but that at regular cycles it visits the interior in epidemic form." He also mentions the incident of the death of the surgeon of the U. S. S. *Ranger* from "yellow fever contracted in the Pacific port of Amfala, Honduras, where the disease was reported to have existed in epidemic form the previous year," and the cases appearing aboard the U. S. S. *Bennington* in the harbor of La Libertad, San Salvador, where the death of United States Consul Pollock also occurred, the U. S. S. *Ranger* and *Bennington* soon after leaving for home ports, the *Ranger* arriving at San Diego and the *Bennington* at San Francisco, the latter still having cases of fever aboard.

For the past few years shipping and trade on the entire Pacific Coast has been at the lowest possible ebb, but of late there is a marked improvement, and with the opening up of China and Japan and the "disappearance of the Isthmus of Panama as a barrier of maritime intercourse, an immense new commerce is springing up on the waters of the Pacific Ocean. The most marked increase of trade at the present time, however, is with Mexican and Central American coast ports, which are directly connected with points in the interior, where it is believed that "yellow fever is becoming endemic, and where it is generally known that smallpox is almost constantly present, and where the natives take no precautions whatever against the latter disease, in fact, paying no attention to it at all. Our immunity at this point from an invasion of these diseases in the past has been due principally to the great depression in trade and commerce, consequently restricted travel and communication between these ports; this source of safety, however, is now rapidly disappearing with the increase in traffic and travel, and sooner or later an emergency will arise from the arrival of infected vessels at this port.

RECOMMENDATIONS.

A disinfecting plant ought to be supplied at once. In July, 1894, proposals were invited for the construction of such a plant, but on account of the lowest bids exceeding the balance of the appropriation available for such work, all bids had to be rejected.*

The present wharf and warehouse only being sufficiently large to accommodate the disinfecting machinery, there ought to be at least 50 feet added to each end of the wharf, and the warehouse extended in order to give sufficient storage room. A small upright boiler and engine with ballast-hoisting apparatus should be supplied, and a place provided on the wharf to be used as quarters for the crew of a vessel undergoing disinfection. A detention barracks ought to be constructed sufficiently large to accommodate at least 200 persons. Suitable bathrooms ought also to be provided.

A lazaretto ought also to be built at a more remote point from the quarantine administration buildings than the present hospital building, which, on account of its position, should be used only for noninfectious cases. However, before additional buildings can be constructed, more ground will have to be obtained. The station is surrounded on three sides by a military reservation of some 1,100 acres in extent. Several ineffectual attempts have been made to have the necessary amount of ground transferred. It is thought that this can be accomplished in the very near future, as it is impracticable to use these grounds immediately surrounding the station for military purposes.

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*At this date November 1, 1895, plant is under construction.

A large cistern ought to be built in the center of the grounds, with pipes leading from the roofs of the buildings into it, and a good force pump supplied, to be used in case of fire. This precaution is necessary for protection at times in which the water pressure is deficient or shut off, as in the case of repairs or a scarcity of water, a condition of frequent occurrence during the past year.

Very respectfully,
W. W. McKAY,
Acting Assistant Surgeon,
Marine-Hospital Service, in charge Station.

SURGEON-GENERAL, *Marine-Hospital Service.*

SAN FRANCISCO QUARANTINE, ANGEL ISLAND, CALIFORNIA.

For descriptions and illustrations of this station see annual reports for 1892 and 1894.

REPORT OF THE SAN FRANCISCO QUARANTINE STATION, ANGEL ISLAND, CALIFORNIA.

By P. A. Surg. C. T. PECKHAM.

One vessel, the *Coptic*, belonging to the Oriental and Occidental Steamship Company, was inspected and detained for disinfection. Three patients were sent by the quarantine officer from the U. S. S. *Bennington* to this quarantine station, the ship being passed to Mare Island.

Five patients were treated, 3 from the U. S. S. *Bennington* and 2 from the *Coptic*.

Of the 3 from the U. S. S. *Bennington*, 1 was convalescing from yellow fever, and 2 were convalescing from severe malarial fever. Of the 2 from the *Coptic*, 1 had confluent smallpox, the other varioloid. All recovered.

The station is located on the northern slope of Angel Island, which is located in the northern part of San Francisco Bay, and is distant from San Francisco 6½ miles. In front of the station are the Raccoon Straits, and beyond these is a part of the San Francisco Bay, and in the far distance is San Pablo Bay.

To the north the station commands a view of 30 miles. To the south of the station is Mount Ida, which is about 725 feet high. Lower hills to the east and west of the station connect with Mount Ida. These hills cut off the view from the west, east, and south, and protect the station from winds from any of these points. The officers' quarters are about 100 feet above the level of the bay.

At this station there is a boathouse, warehouse, disinfecting house, three barracks for steerage passengers, hospital building for noncontagious diseases, lazaretto, pump house, laundry, attendants' quarters, and quarters for the steward and medical officer. Anchored in the hospital cove is the old U. S. S. *Omaha*.

The warehouse is sufficiently large to contain all of the personal effects of a steamship's steerage passengers, which can not be disinfected by steam.

During the last quarantine the leather trunks and shoes were fumigated by sulphur dioxide. The disinfecting plant contains three large iron cylinders, about 50 feet long and 6 feet in diameter. These can be heated separately or all at the same time. The disinfection can be done more rapidly by filling one cylinder and while its contents are being disinfected a second one can be filled. The clothes dry very rapidly as soon as the cylinder is opened.

The two Chinese barracks will contain 576 passengers. The barracks building has a large dining room, a kitchen, pantry, and two large rooms for steerage passengers. These rooms will hold 216 passengers.

West of the barracks building is the hospital for noncontagious diseases. In this building is the dispensary, the office, three wards, and a kitchen; 200 yards west of the hospital is the lazaretto. This consists of two buildings; the one in front contains a detention room, a kitchen, nurses' room, and a bathroom; the rear building has two wards, each with a bathroom.

There are in a line south of the three last-mentioned buildings a building containing two large salt-water tanks, a pumping house, a laundry, and a building for attendants. The water from the salt-water tanks is used for flushing the water-closets in the Chinese barracks and the barracks building. The engine in the pumping house is used to pump water into the tanks, and during quarantine for cooking rice, soup, meat, and tea for the steerage passengers.

There are at this station one medical officer, a steward, and eight attendants.

One attendant is an engineer and makes the trip to the city twice a week for supplies, runs the engine in the pumping house and laundry, does repairing to plumbing, horseshoeing, and blacksmithing for the station.

Another attendant steers the launch on its trips for supplies, and looks after the boats belonging to the station, keeping them clean and painted. He is also watchman on the *Sternberg*.

Another attendant is a nurse in case of actual quarantine. At other times he is laundryman two days in the week. Other days he assists the yard men.

Another attendant is a carpenter. He repairs the boats and buildings. He has been making window screens for the medical officer's, steward's, and attendants' quarters. He now has a float to build, materials for which have been purchased under advertisement, and an addition to the pumping house to cover the tanks, where the cooking is done for the steerage passengers.

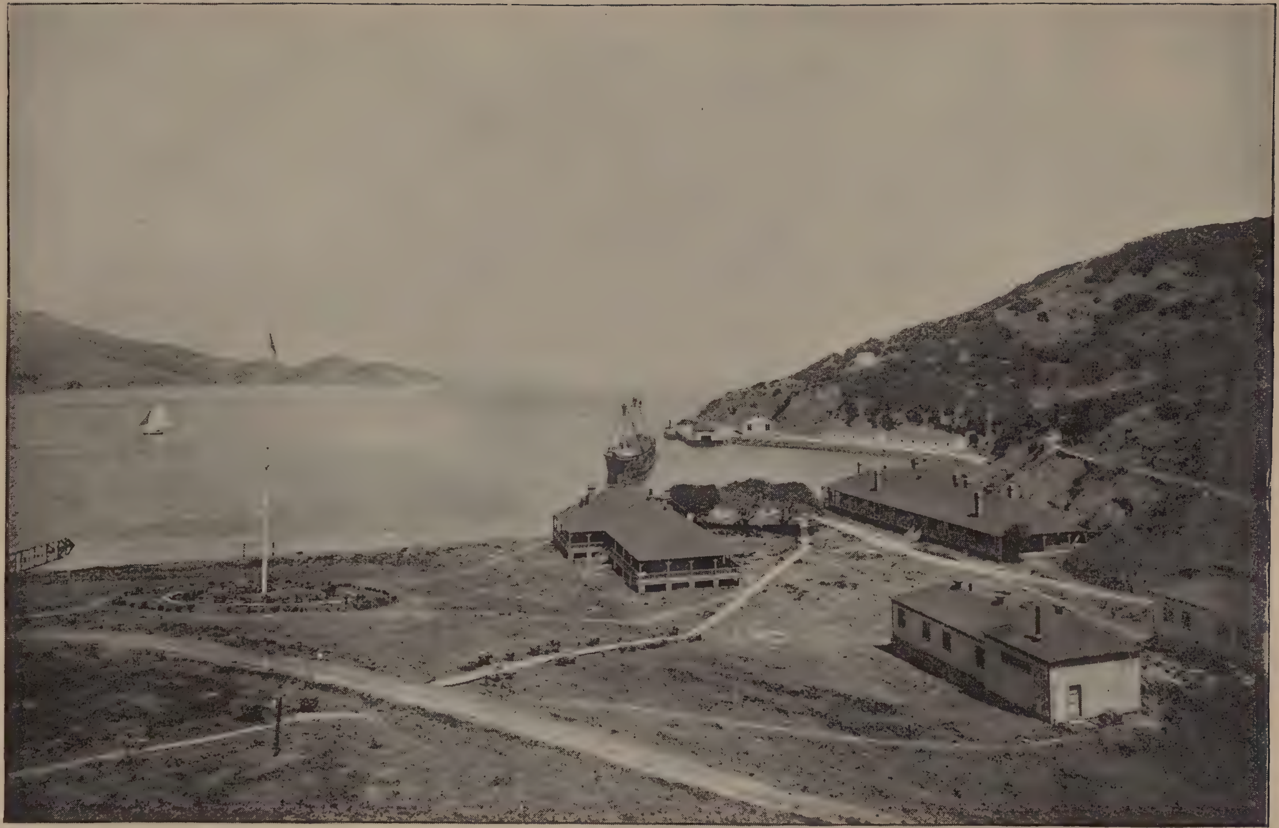
Another is night watchman and looks after the whole reservation at night.

There are two yard men. These are absolutely necessary as are the others. The entire reservation is covered with grass and brush. The grass and brush have to be cut down and burned to prevent damage to buildings in case of fire. Coal has to be carted from the wharf to the laundry, the pumping house, the attendants' and officer's quarters. Then, too, the banks in the rear of the officer's quarters and the barracks building slide during the winter, and the dirt has to be removed to prevent damage to the buildings. This work has to be done by the yard men. The wharf has been repaired at a cost of $452. A float has been authorized, which will be built by the carpenter at the station. The cost of the material was $90.

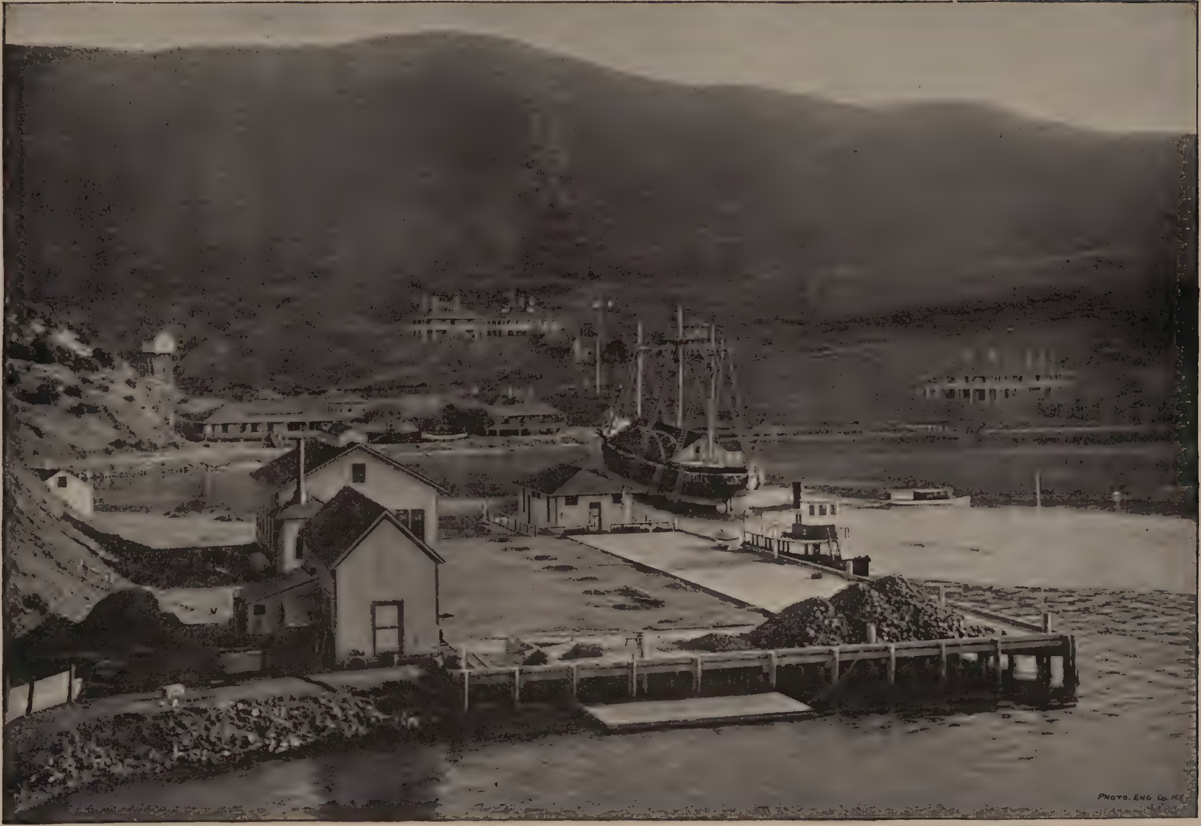
A new shed will be built to cover the tanks in which the rice is cooked, the material for which has been purchased at a cost of $50.

The relations between the quarantine at this station and the State quarantine has been pleasant, except the State officer thought the cabin passengers ought to be released from the *Coptic* after she had been in port two days, making only nine days since exposure. I thought they should be detained seven days after they entered port, making fourteen days since their last exposure. The quarantine officer wrote rather an impertinent letter because I permitted twenty-seven firemen who had been in quarantine eight days since they entered port, making fifteen days since their last exposure, to return to the *Coptic*. This letter, with my remarks upon the same, I transmitted to the Bureau.

There is among the steamship companies a desire that the Bureau should have the administration of the quarantine of this port wholly under its control. The station is equipped for this, except there would be needed a boarding tug. The *Sternberg* is not fitted for such work, especially in rough weather. Her pilot house and davits would be carried away in rough weather. The quarantine plant is a good one. The buildings are in good condition, except that they all need painting to preserve them. The only additions now needed are a building for washing the passengers before they go to their barracks, and a small garbage furnace. The walls in the officers' quarters are very much defaced and need papering.



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CALIFORNIA. (VIEW 1.)



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CALIFORNIA. (VIEW 2.)

During the recent quarantine of the steamship *Coptic* for smallpox it was found to be an impossibility to give the steerage passengers a bath before they went to their quarters. If they went at once to their barracks it would be impossible to disinfect their clothing. They were ordered to place their clothing, except what they wore, in the disinfecting cylinders. After the clothing and bedding were disinfected they were allowed to go to their quarters. The rawhide trunks and shoes were disinfected by sulphur dioxide. When they found that their clothing was to be disinfected, they put on all they could get on. Their bodies were uncleansed because there was no place to bathe them.

That all may be thoroughly cleansed it is recommended that a bathing house like the one described be built, in order that when a passenger goes to his barracks all of his clothing and his body may be thoroughly cleansed. The house can be built by one of the attendants, who is a carpenter, and the engineer can do the plumbing. An appropriation for the material alone is asked for.

A in the accompanying diagram is a room in which twenty-four passengers enter and remove their clothing. They enter one of the bathrooms in D. Their clothing is to be taken to the disinfecting house and placed in one of the cylinders for disinfection. After the passengers have been bathed they pass to room B, where their clothes will be returned to them by an attendant through the passage C. The apartments B and C are completely separated from A, D, and E by vertical partitions. E is the room in which the water is heated for bathing purposes.

Guards will be placed so that no one can pass to the barracks except they pass through the bath house. When cleansed and clothed in disinfected garments, they pass to the barracks. The estimated cost of the material for this building is $1,856. An itemized estimate is submitted of the material, and its cost is ascertained in the San Francisco market.

INSPECTION OF VESSELS AT SAN FRANCISCO.

As reported in the previous annual report, the boarding of vessels arriving at San Francisco has heretofore been done by the local quarantine officer. I have always maintained that this boarding should be done under the auspices of the Bureau which has control of the expensive plant provided for San Francisco by the Government, the local authorities having no provision whatever for disinfection of vessels, the treatment of cases of epidemic diseases arriving thereon, or the detention of suspects. Following is the correspondence which explains the circumstances under which the National Government has finally assumed the performance of this function:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., September 14, 1895.

SIR: I have to inclose a copy of the joint resolution passed by the legislature of California, forwarded by Senator Perkins, requesting the Secretary of the Treasury to assume entire control of the maritime quarantine service at the port of San Francisco, meaning the inspection of vessels in addition to the quarantine function now being performed.

I am informed also that the chamber of commerce of San Francisco passed a resolution last winter urging the United States Government to perform all the quarantine service at San Francisco, and that a bill abolishing the office of state or local quarantine officer was passed by the legislature, though the governor failed to approve it.

I have to state that the present quarantine officer is a new incumbent, presumably not experienced in the performance of his peculiar duties.

I inclose also a clipping from this morning's Post, showing that there is a conflict between the health board of San Francisco and this quarantine officer, concerning the inspection and quarantining of vessels arriving from the cholera-infected ports of Honolulu, Hawaii, Japan, and from China.

In February last I was consulted by Senator Perkins and Supt. E. F. Loud concerning the resolution of the San Francisco Chamber of Commerce, and informed them that to comply with the resolution the quarantine-service appropriation, which had been estimated for and passed by the House of Representatives and was then under consideration in the Senate, must necessarily be increased by $12,000 to meet the yearly expenses of the boarding steamer and additional quarantine officer.

The additional appropriation was disapproved by the Department. This, however, was prior to the passage of the joint resolution of the California legislature, the purpose of which is now emphasized by the menace of cholera from Hawaii, China, and Japan.

Having established an expensive quarantine plant on Angel Island, San Francisco Bay, and having appropriated money for a steam tug, it would seem to have been the intent of Congress that the Department should assume full quarantine control. If, through a division of authority or local inefficiency cholera should obtain a lodgment in San Francisco, the Department might be censured for not assuming its full powers and prerogatives.

In view of the situation, as above shown, at San Francisco to-day, it will be necessary to at once exercise the same surveillance over the local quarantine inspection as was exercised in New York Harbor in 1892 and 1893; and it will be necessary now, as then, to have an experienced officer of the Service, with a boat at his command, to follow up the work of the local quarantine officer.

In view of this necessity and its accompanying expense, and the considerations just mentioned, it would seem both proper and necessary that the Department at once place in commission the quarantine steamer *Sternberg*, which is now lying idle, and begin the inspection of all vessels arriving in San Francisco. I have, therefore, to request authority to place this steamer in commission, with the detail of an officer of the Marine-Hospital Service as boarding officer, the expenses therefor to be paid from the epidemic fund.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

The SECRETARY OF THE TREASURY.

Approved for six months.

J. G. CARLISLE.

[Inclosure.]

Assembly joint resolution No. 11, relative to the control of the maritime quarantine service at the port of San Francisco.

[Adopted March 5, 1895.]

Resolved by the assembly, the senate concurring, That our Senators in Congress be instructed, and our Representatives requested, to urge upon the Secretary of the Treasury that the Department assume entire control of the maritime quarantine service at the port of San Francisco.

[Telegram.]

WASHINGTON, *September 16, 1895.*

Place *Sternberg* in commission for boarding purposes. Rosenau ordered to report to you. Place him in charge of boarding. Will send outfit for bacteriological examination cases. Secretary of Treasury has determined Service shall perform all maritime quarantine at San Francisco in accordance with resolution of legislature and the law. * * * Wire if *Sternberg* is ready for this service.

WYMAN, *Surgeon-General.*

Passed Assistant Surgeon PECKHAM,
San Francisco Quarantine, Angel Island, Cal.

PORT TOWNSEND QUARANTINE.

(Boarding station, Port Townsend, hospital, disinfecting station, etc., Diamond Point, Washington.)

REPORT OF THE MEDICAL OFFICER IN COMMAND.

United States Quarantine Station, Surgeon's Office,
Port Townsend, Wash., July 18, 1895.

Sir: I have the honor to make the following report upon the transactions at this station for the fiscal year ending June 30, 1895, as directed by your letter of June 22, 1895:

No vessels were disinfected and none were detained for observation. One hundred and fifty-two vessels were inspected and passed, and one vessel was spoken and passed.

No patients were treated at this quarantine station during the fiscal year 1895.

The station is situated on Diamond Point, at the mouth of Discovery Bay. The reservation consists of 153 acres, only 20 of which have been cleared, the remainder being still covered with a thick growth of timber and underbrush. On this reservation are four buildings, besides a wharf and warehouse. The four buildings are a hospital, surgeon's quarters, attendants' quarters, detention house, and tank house.

The hospital consists of a ward capable of holding 25 patients, office, dispensary, nurse's room, kitchen, and lavatory. A bath tub is needed in this building, as every well-equipped hospital should have facilities for giving patients a bath.

There are eight rooms in the surgeon's quarters—office, parlor, bedroom, dining room, kitchen, bathroom, storeroom, and a room in the attic.

The attendants' quarters consist of a dormitory, bathroom, dining room, and kitchen.

The tank house contains two large 10,000-gallon redwood tanks. It is placed on the hill above the other buildings, so that water will flow when the pipes are laid from these tanks to all the buildings on the reservation.

The detention house consists of a dormitory, kitchen, and wash room. It has been estimated to accommodate 250 persons.

The wharf is 238 feet long and has a tee at the end 109 feet long and 24 feet wide. The depth of water at end of wharf is 32 feet at high tide. A warehouse has been built upon the tee. This is divided into three rooms by partitions. In the middle room is the disinfecting plant consisting of a steam disinfecting chamber with car and trucks complete, steam boiler, one tank and fire pump, bichloride pump, one vacuum pump, and one sulphur disinfecting apparatus.

The disinfecting chamber is 4 feet 4 inches by 5 feet 4 inches inside by 15 feet 10 inches with door at each end. The inside and outside shell of jackets are constructed of $\frac{5}{16}$-inch boiler iron. This chamber extends from one room to the other through a wooden partition so that infected clothing and other infected things can be placed in the chamber in one room and the disinfected articles taken out in another. The boiler is 42 inches in diameter by 9 feet high and is constructed of $\frac{5}{16}$-inch steel, crown sheets and top heads $\frac{7}{16}$-inch steel. The Worthington vacuum pump is 7½ by 7 by 10 inches, the Worthington fire pump 7½ by 3¾ by 10 inches, and the Worthington bichloride pump 5¼ by 3½ by 5 inches. The sulphur disinfecting apparatus consists of furnace, reservoir, exhaust fan, and fan engine. There is a vacant room in the warehouse, now used as a storeroom, which might be fitted up with shower baths for bathing infected persons. Hot water could be obtained from the boiler and the passengers' clothing could be disinfected while they were bathing.

The vessels and boats attached to the station are the steamer *Iroquois*, the naphtha launch *Cascade*, and two whitehall boats, one 18 feet long and one 21 feet long.

The steamer *Iroquois* is at present lying in the harbor of Port Townsend. Her deck has been roofed over and she would be able, if the necessity should arise, to accommodate a large number of people.

The naphtha launch *Cascade* was received from the Gas Power and Engine Company, New York, on June 3, 1895. She is 38 feet long, 8-feet beam, and has a depth of 3 feet 6 inches. Her frame has been built very strong. Her motive power is a 12-horse-power naphtha engine. She is a seaworthy vessel and is a great acquisition to the station.

A passed assistant surgeon is at present in charge of the station. The number of attendants are four; one at the station, who acts as keeper and engineer, and three at Port Townsend—one keeper of steamer *Iroquois*, and two to run naphtha launch, engineer and steersman.

The additions and improvements during the fiscal year are as follows:

Disinfecting plant	$6, 196. 97
Two angle thermometers	31. 00
Naphtha launch	3, 430. 00
54 window shades	60. 00
One Whitehall boat	75. 00
Erection of boathouse, steps, and gang plank	435. 00
Total	10, 327. 97

Vessels are boarded and inspected in the harbor of Port Townsend. It would be inconvenient to make this inspection in Discovery Bay, where the station is situated, as vessels from Victoria and Vancouver would have to go a considerable distance out of their way in order to be inspected. All vessels from foreign ports are inspected, and those from British Columbia if they carry passengers nonresident in America sixty days. Vessels from foreign ports calling at Port Angeles are required to stop at Port Townsend for the inspection of the United States quarantine officer if they are bound up Puget Sound.

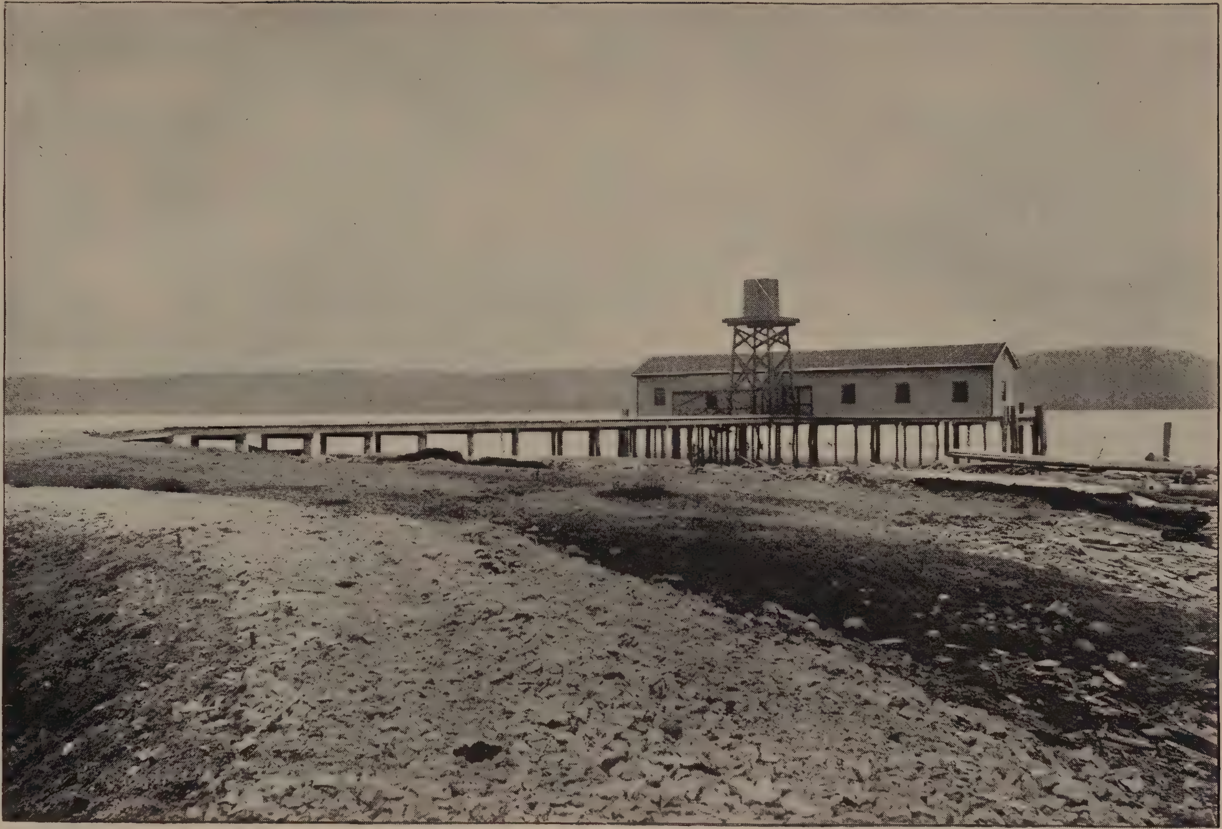
In a letter dated July 12, 1895, I recommended that the following repairs, alterations, and additions be made at this station:

Water plant	$3, 000
Fence with two gates	500
Bunks and ceiling of detention house	800
Ceiling of warehouse on wharf	275
Draining of swamp	600
Clearing of 20 acres of land	2, 500
Removing stumps, etc., from land already cleared	1, 000
Telephone line	800
Removal of steamer *Iroquois*	150
Additional attendant	720
Bath tub for hospital	75
Total	10, 420

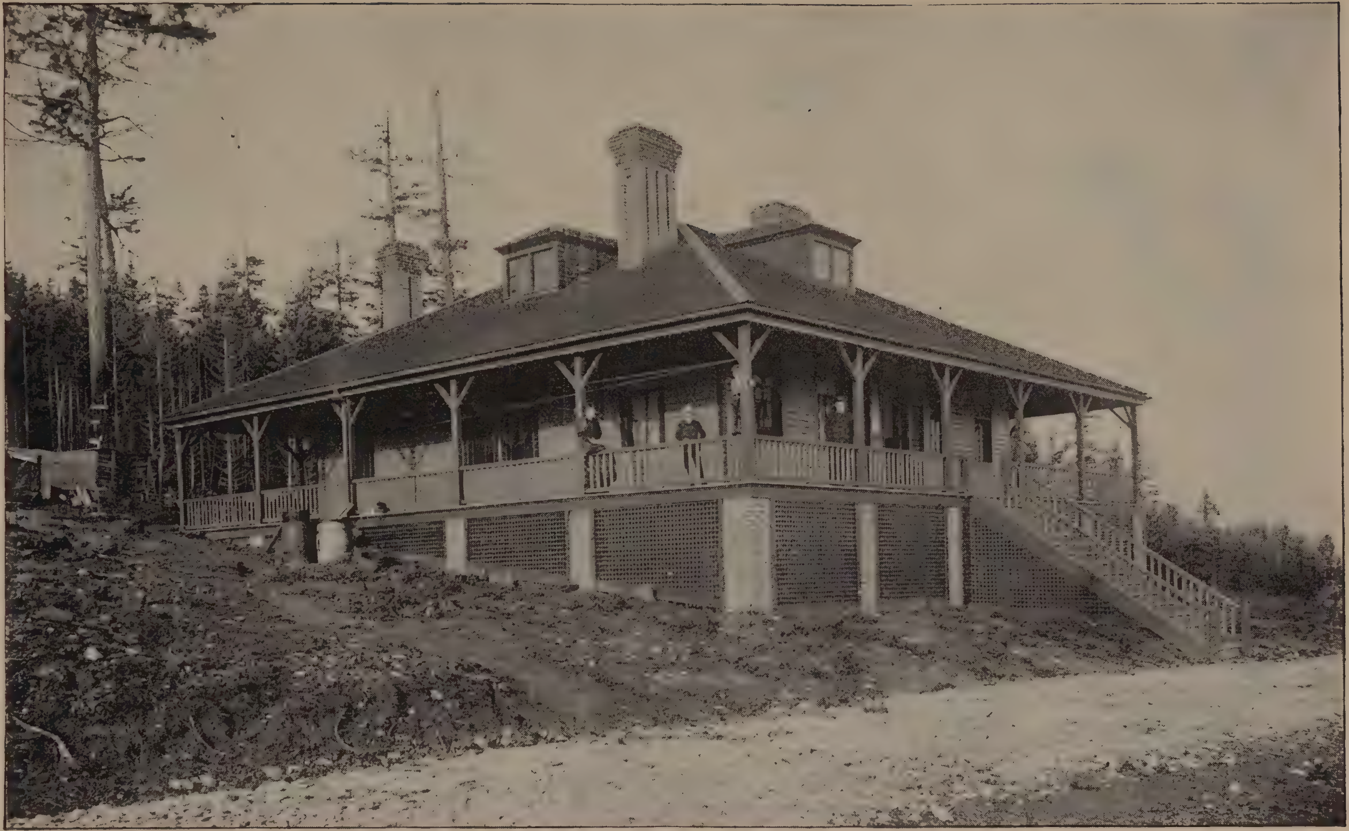
A water plant is greatly needed at this station. All water has to be hauled on a wagon one-third of a mile up a steep hill from a spring at the northwest corner of the reservation. The water-closets can not be used, as there is no water to flush them. The disinfecting plant can not be operated, as there is no water to supply the boiler. In case of fire it would be difficult to prevent the buildings on the reservation from burning down, as no water could be obtained to put out the flames.

A wire fence around the reservation is necessary to keep out cattle and horses, which roam at will all over the country.

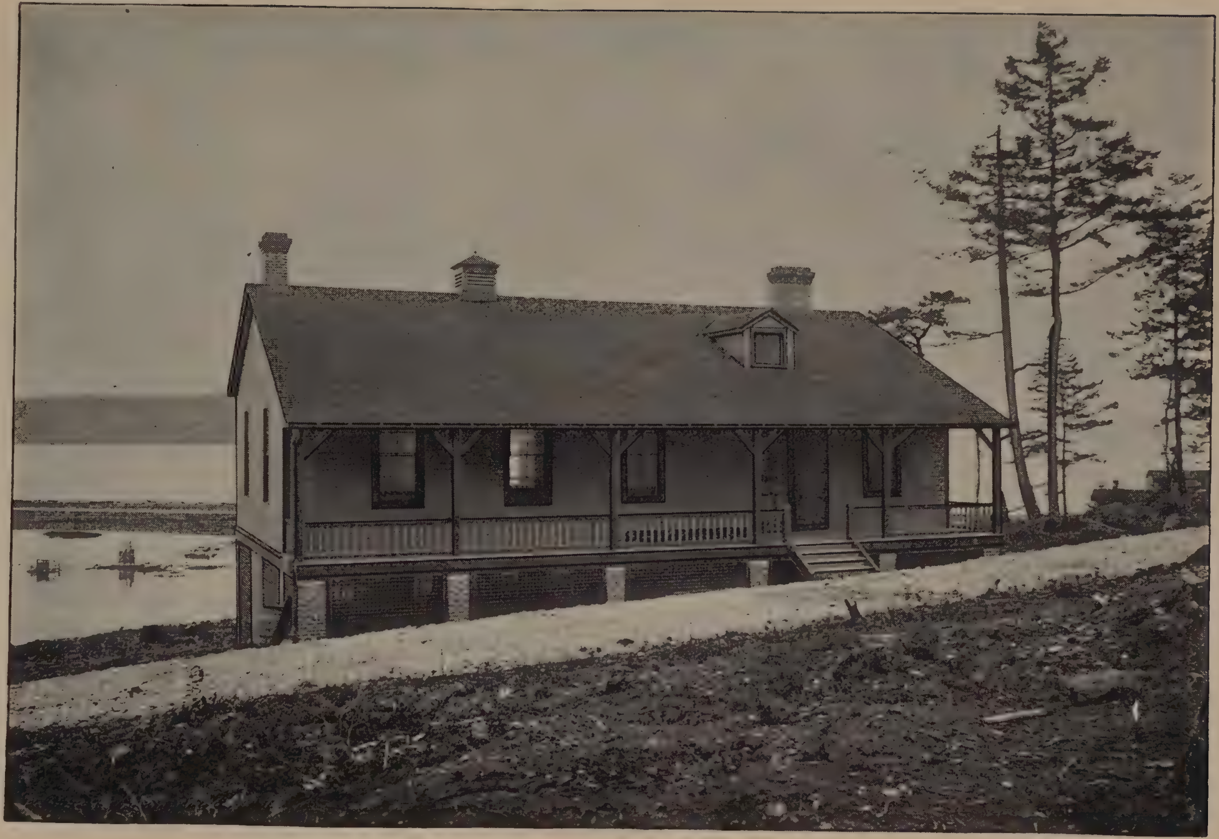
Plans for ceiling the detention house and putting bunks in the same were forwarded to the Department May 22, 1895. If an infected steamer should arrive at this station the passengers and crew would have to be put into this building, and



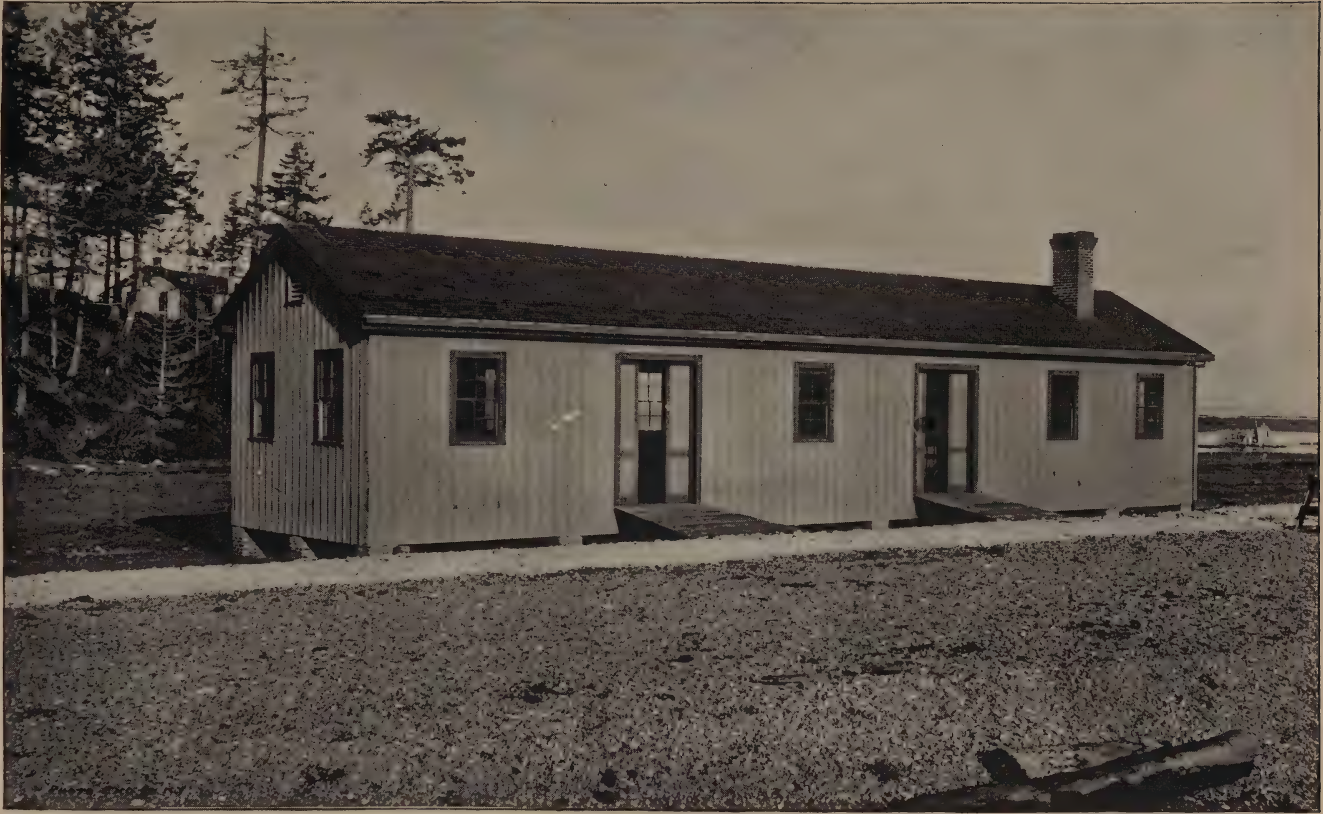
DISINFECTING PIER, U. S. QUARANTINE STATION, PORT TOWNSEND, WASHINGTON. (VIEW 1.)



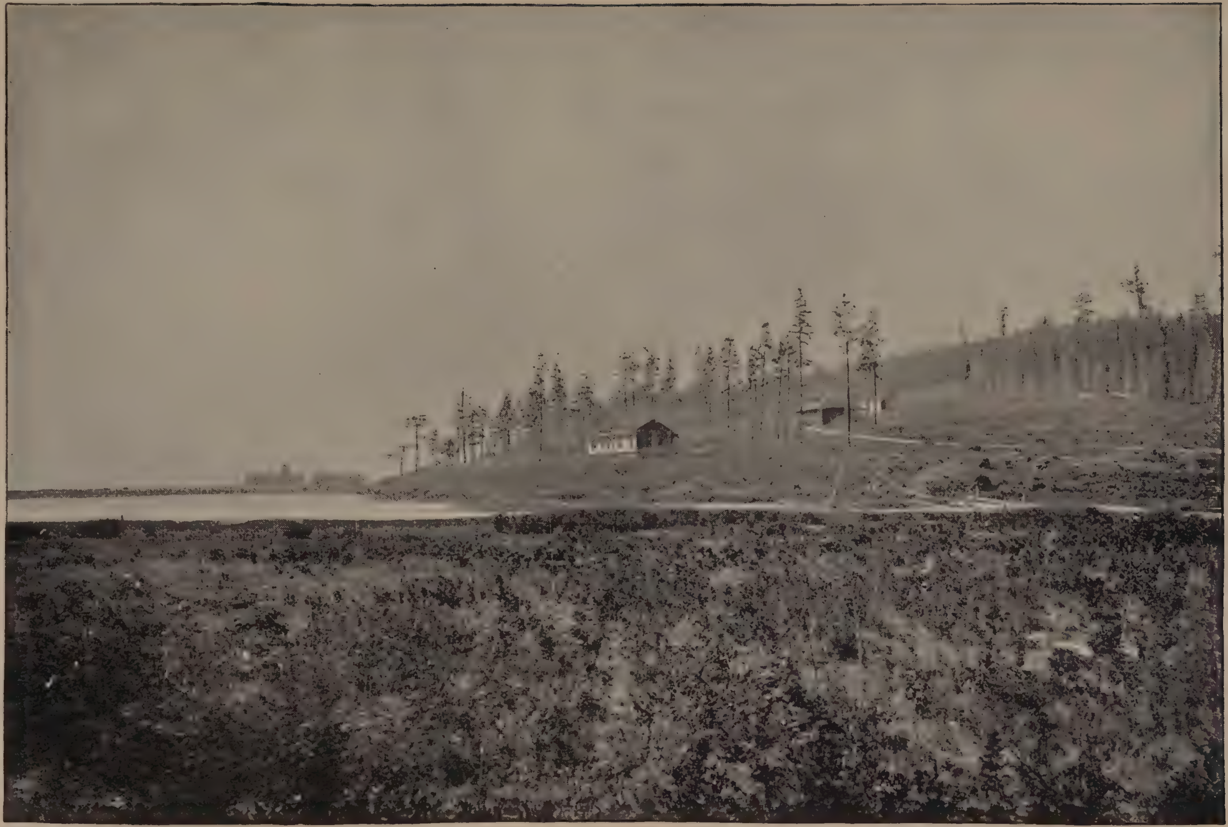
OFFICER'S QUARTERS, U. S. QUARANTINE STATION, PORT TOWNSEND, WASHINGTON. (VIEW 2.)



ATTENDANT'S QUARTERS, U. S. QUARANTINE STATION, PORT TOWNSEND, WASHINGTON. (VIEW 3.)



WAREHOUSE, U. S. QUARANTINE STATION, PORT TOWNSEND, WASHINGTON. (VIEW 4.)



U. S. QUARANTINE STATION, DIAMOND POINT, NEAR PORT TOWNSEND, WASHINGTON. (VIEW 5.)

these bunks should be built for them to sleep on; otherwise they would have to lie on the floor. The building should be ceiled to prevent draughts and make it more habitable.

The warehouse on the wharf should be ceiled, as the salt air injures the machinery of the disinfecting plant. As there is no heat in the building the bright work tarnishes quickly and requires the constant attention of the engineer to keep it in order.

The swamp on the reservation should be drained, as in the summer time the stagnant water smells badly, and will be apt to cause sickness among the people living on the reservation.

Twenty more acres of land should be cleared of trees and undergrowth. In the dry season forest fires are frequent in this section of the country, and the trees at present are so near the buildings that in case of fire the latter would undoubtedly be consumed.

It is important, therefore, to clear more land in order that the open space around the buildings should be larger.

The 20 acres that have already been cleared present a very unsightly appearance, as nothing has been done except to cut away the trees. The stumps should be taken out, the ground leveled and sown in grass seed.

The importance of a telephone line connecting with the Sunset Telephone Company at Junction City can not be overestimated, as the only way at present of communicating with anyone at the station is by boat. Port Townsend, the nearest place, is 10 miles away, and the tide is so strong it takes the naphtha launch from three to four hours to make the trip there and return.

The steamer *Iroquois* should be removed from the harbor of Port Townsend to Discovery Bay.

In case of the necessity for disinfection of baggage it would be much preferable to send it to the station, where there are the proper appliances for doing it, than to try to disinfect on the *Iroquois* in Port Townsend Harbor. For use as a detention ship she ought to be in Discovery Bay, as it would be difficult to properly isolate her in this harbor. If she remains in this harbor she ought to be moved nearer the west shore of the bay, as she is now lying in an exposed position.

An additional attendant is needed to assist the engineer and to keep the grounds and buildings in proper condition. When not otherwise occupied, he could be employed to clear the land and cut wood for the use of the station. It is sometimes necessary for the engineer to come to Port Townsend for supplies and other purposes, and in such cases someone should be left to guard the station during his absence.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

QUARANTINE INSPECTION AT PORT TOWNSEND.

The following order was promulgated regarding the inspection of vessels bound for ports on the Straits of Fuca, Washington and Puget sounds. It was followed by a letter to the collector of customs, signed by the Acting Secretary of the Treasury, directing him to refuse entry to vessels not furnished with quarantine certificates in accordance with the provisions of this order.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 26, 1895.

SIR: Referring to your letter of February 21, 1895, and subsequent correspondence touching upon the subject, namely, quarantine inspection at Port Townsend, I have to inform you that after careful consideration of the whole subject your recommendations contained in letter of April 18, 1895, are approved, as follows:

Vessels entering at Port Angeles should be admitted on the local quarantine officer's certificate, provided their port of destination is Port Angeles, or any port situated on the waters of the Straits of Fuca or Washington Sound, but if the vessel's destination is any point on Puget Sound, or she receives orders to proceed to some point on said sound while making one of the above-named places a port of call for orders, said vessel must in that case call at Port Townsend for the inspection of the United States quarantine officer.

Vessels from foreign ports other than those of British Columbia bound for any port on Puget Sound shall be subject to quarantine inspection at Port Townsend. Vessels from British Columbia carrying persons or effects of persons nonresident in America for sixty days next preceding arrival shall also be inspected.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

MEDICAL OFFICER IN COMMAND PORT TOWNSEND QUARANTINE,
Port Townsend, Washington.

DIVISION OF SANITARY REPORTS AND STATISTICS.

This division is under the charge of a medical officer of the Service, and is chiefly concerned in the collection of sanitary information and statistics, both domestic and foreign, and in the compilation of such matter for publication in the abstract of sanitary reports, published weekly by the Supervising Surgeon-General, Marine-Hospital Service, under authority of the law of February 15, 1893.

In this division press reports relative to the existence of quarantinable disease are investigated by mail or telegraph, when there has been failure on the part of State or local health officials to report the same. Queries relative to the existence of yellow fever, etc., are answered, correspondence with the health officials of the suspected locality being entered upon—if no reports are on file showing the existence or nonexistence of the disease in question.

Tables showing the prevalence of smallpox in the United States are prepared weekly, in addition to which the existence of yellow fever and cholera throughout the world is shown from week to week in tabular form in the abstract of sanitary reports.

Weekly mortality reports are received from upward of 120 cities and towns of the United States, these reports being made on blank forms furnished the local health officers by this office. In addition to these weekly reports, monthly reports of cities, and yearly and monthly reports of States are regularly received and prepared for publication.

A table showing the yearly mortality in 199 cities and towns in the United States, as well as the death rate, computed on both the population of the United States Census of 1890, and on the estimated population (as reported by the health officers), was published in the abstract of sanitary reports during the year, and is herewith appended.

MORTALITY TABLE, CITIES OF THE UNITED STATES, YEAR 1894.

Cities.	Total deaths from all causes.	Population, United States Census of 1890.	Annual rate per 1,000 of the population for 1890.	Estimated population.	Annual rate per 1,000 of the estimated population.
Alameda, Cal	162	11, 165	14. 51	14, 000	11. 57
Altoona, Pa	569	30, 337	18. 75	40, 000	14. 22
Amesbury, Mass	170	9, 798	17. 35	10, 000	17. 00
Ashtabula, Ohio	205	8, 338	24. 58	(*)	....
Augusta, Ga	767	33, 300	23. 03	42, 000	*a* 18. 26
Austin, Tex	202	14, 575	13. 10	(*)	....
Baltimore, Md	*b* 9, 486	434, 439	21. 83	496, 315	19. 11
Batavia, N. Y	107	7, 221	14. 81	9, 000	11. 88
Bath, Me	153	8, 723	17. 53	9, 000	17. 00
Battle Creek, Mich	159	13, 197	12. 04	16, 000	9. 93
Belleville, Ill	209	15, 361	13. 6	20, 000	10. 45

*Not reported.

a White, 11.36; colored, 28.41.

b White, 7,242; colored, 2,244.

MORTALITY TABLE, CITIES OF THE UNITED STATES, YEAR 1894—Continued.

Cities.	Total deaths from all causes.	Population, United States Census of 1890.	Annual rate per 1,000 of the population for 1890.	Estimated population.	Annual rate per 1,000 of the estimated population.
Bennington, Vt	67	6, 391	10. 48	(*)	....
Binghamton, N. Y	643	35, 005	18. 37	40, 622	15. 82
Blackstone, Mass	138	6, 138	22. 48	(*)	....
Bloomington, Ill	335	20, 484	16. 35	25, 000	13. 4
Boston, Mass	11, 520	448, 477	25. 68	501, 107	22. 98
Bridgeport, Conn	900	48, 866	18. 41	58, 243	15. 44
Bradford, Pa	123	10, 514	11. 69	(*)	....
Bristol, Conn	130	7, 302	17. 8	8, 000	16. 25
Bristol, Pa	136	6, 553	20. 75	7, 000	19. 42
Bristol, R. I	103	5, 478	18. 8	6, 000	17. 10
Brockton Mass	481	27, 294	17. 62	33, 939	14. 17
Brookline, Mass	234	12, 103	19. 33	(*)	....
Brooklyn, N. Y	21, 183	806, 343	26. 27	1, 012, 000	20. 93
Brownsville, Tex	266	6, 134	43. 36	6, 000	44. 33
Brunswick, Ga	*a* 161	8, 459	19. 03	8, 359	19. 26
Burlington, Vt	290	14, 590	19. 18	(*)	....
Butler, Pa	87	8, 734	9. 96	9, 500	9. 15
Butte, Mont	442	10, 723	41. 21	30, 000	14. 73
Cambridge, Mass	1, 527	70, 023	21. 8	79, 607	19. 28
Charleston, S. C	*b* 1, 779	54, 955	32. 37	65, 165	27. 29
Chattanooga, Tenn	458	29, 100	15. 73	40, 000	11. 45
Cheboygan, Mich	140	6, 235	22. 45	(*)	....
Chester, Pa	419	20, 226	20. 71	22, 000	19. 04
Chicago, Ill	23, 892	1, 099, 850	21. 72	1, 600, 000	14. 93
Cincinnati, Ohio	5, 945	296, 908	20. 02	325, 000	18. 29
Claremont, N. H	102	5, 565	18. 32	6, 000	17. 00
Cleveland, Ohio	5, 663	261, 353	21. 28	325, 000	17. 42
College Point, N. Y	95	6, 127	15. 5	(*)	....
Columbus, Ind	97	6, 719	14. 43	10, 180	9. 52
Columbus, Ohio	1, 309	88, 150	14. 84	100, 000	13. 09
Conshohocken, Pa	68	5. 470	12. 43	(*)	....
Cortland, N. Y	99	8, 590	11. 52	(*)	....
Council Bluffs, Iowa	289	21, 474	13. 45	30, 000	9. 63
Crawfordsville, Ind	83	6, 089	13. 63	7, 000	11. 85
Cumberland, Md	256	12, 729	20. 11	15, 000	17. 06
Danville, Ill	257	11, 491	22. 36	20, 000	12. 85
Dayton, Ohio	1, 126	61, 220	18. 39	85, 000	13. 24
Dedham, Mass	133	7, 123	18. 67	75, 000	17. 73
Detroit, Mich	3, 934	205, 876	19. 1	275, 000	14. 30
Dubuque, Iowa	423	30, 311	13. 95	40, 000	10. 57
Dunkirk, N. Y	196	9, 416	20. 81	10, 000	19. 60
East St. Louis, Ill	278	15, 169	18. 33	25, 000	11. 12
Elizabeth, N. J	842	37, 764	22. 29	41, 000	20. 53
Enfield, Conn	121	7, 199	16. 8	7, 199	16. 80
Erie, Pa	823	40, 634	20. 25	50, 000	16. 46
Evansville, Ind	927	50, 756	18. 26	60, 000	15. 45
Everett, Mass	280	11, 068	25. 29	(*)	....
Fitchburg, Mass	341	22, 037	15. 47	29, 383	11. 60
Flint, Mich	143	9, 803	14. 58	10, 420	13. 72
Fort Smith, Ark	139	11, 311	12. 28	16, 000	8. 68
Fort Worth, Tex	307	23, 076	13. 3	32, 000	9. 59
Fresno, Cal	130	10, 818	12. 01	10, 000	13. 00
Grand Rapids, Mich	1, 036	60, 278	17. 18	79, 664	13. 00
Green Bay, Wis	120	9, 069	13. 23	(*)	....
Greenville, Miss	143	5, 473	26. 12	8, 200	17. 43
Greenwich, Conn	182	10, 131	17. 96	(*)	....
Harrisburg, Pa	595	39, 385	15. 08	(*)	....
Hartford, Conn	951	53, 230	17. 86	60, 000	15. 85
Haverhill, Mass	505	27, 412	18. 42	31, 390	16. 08
Hazleton, Pa	170	11, 872	14. 31	14, 000	12. 14
Helena, Mont	125	13, 834	9. 03	(*)	....
Hoboken, N. J	1, 197	43, 648	27. 42	50, 000	23. 94
Holyoke, Mass	777	35, 637	21. 80	(*)	....
Hornellsville, N. Y	152	10, 996	13. 82	12, 000	12. 50
Houston, Tex	609	27, 557	22. 09	(*)	....
Ironton, Ohio	183	10, 939	16. 72	(*)	....
Jackson, Miss	269	20, 798	12. 93	(*)	....
Jacksonville, Fla	165	12, 935	12. 75	(*)	....
Jamestown, N. Y	317	16, 038	19. 76	18, 627	17. 01
Jersey City, N. J	4, 354	163, 003	26. 71	179, 939	24. 19
Johnstown, N. Y	135	7, 768	17. 37	9, 000	15. 00
Johnstown, Pa	455	21, 805	20. 82	26, 000	17. 50
Kalamazoo, Mich	265	17, 853	14. 84	21, 000	12. 61
Keokuk, Iowa	204	14, 101	14. 46	20, 000	10. 20
Kingston, N. Y	396	21, 261	18. 62	21, 500	18. 41

* Not reported.

a White, 59; colored, 102.

b White, 479; colored, 1,300. Population, white, 28,870; colored, 36,295. Rate, white, 16.58; colored, 35.80.

MORTALITY TABLE, CITIES OF THE UNITED STATES, YEAR 1894—Continued.

Cities.	Total deaths from all causes.	Population, United States Census of 1890.	Annual rate per 1,000 of the population for 1890.	Estimated population.	Annual rate per 1,000 of the estimated population.
Knoxville, Tenn	*a*671	22, 535	29. 77	40, 358	16. 62
Laredo, Tex	454	11, 319	40. 10	11, 350	40. 00
Lawrence, Mass	975	44, 654	21. 83	(*)	-----------
Leavenworth, Kans	341	19, 768	17. 25	(*)	-----------
Lebanon, Pa	330	14, 664	22. 50	16, 000	20. 62
Leominster, Mass	135	7, 269	18. 57	(*)	-----------
Lima, Ohio	252	15, 981	15. 76	(*)	-----------
Little Falls, N. Y	91	8, 783	10. 36	(*)	-----------
Little Rock, Ark	649	25, 874	25. 08	(*)	-----------
Lockport, N. Y	222	16, 038	13. 84	16, 088	13. 79
Lowell, Mass	1, 775	77, 696	22. 84	90, 613	19. 58
Ludington, Mich	103	7, 517	13. 70	8, 300	12. 40
Lynchburg, Va	419	19, 709	21. 25	24, 000	17. 45
McKeesport, Pa	418	20, 741	20. 15	28, 000	16. 21
Macon, Ga	451	22, 746	19. 82	(*)	-----------
Manchester, N. H	977	44, 126	22. 14	50, 000	19. 54
Manitowoc, Wis	105	7, 710	13. 61	8, 500	12. 35
Marinette, Wis	294	11, 523	25. 51	14, 500	20. 27
Marlboro, Mass	271	13, 805	19. 63	15, 000	18. 06
Massillon, Ohio	146	10, 092	14. 46	12, 500	11. 68
Medford Mass	205	11, 079	18. 50	15, 000	13. 66
Melrose, Mass	190	8, 519	22. 30	(*)	-----------
Memphis, Tenn	1, 290	64, 495	20. 01	55, 923	23. 06
Meriden, Conn	411	21, 652	18. 98	28, 500	14. 42
Merrill, Miss	129	6, 809	18. 94	(*)	-----------
Michigan City, Ind	189	16, 776	11. 26	(*)	-----------
Middletown, N. Y	198	11, 977	16. 53	11, 612	17. 05
Middletown, Ohio	90	7, 681	11. 71	10, 000	9. 00
Milford, Mass	178	8, 780	20. 27	(*)	-----------
Milwaukee, Wis	4, 243	204, 468	20. 74	270, 000	15. 71
Minneapolis, Minn	2, 069	164, 738	12. 55	223, 700	9. 24
Mount Vernon, N. Y	256	10, 830	23. 63	18, 000	14. 22
Muskegon, Mich	285	22, 702	12. 55	20, 226	14. 09
Nashua, N. H	406	19, 311	21. 02	25, 000	16. 24
Naugatuck, Conn	140	6, 218	22. 51	8, 320	16. 82
Newark, N. J	4, 614	181, 830	25. 37	200, 000	23. 07
New Bedford Mass	1, 037	40, 733	25. 45	(*)	-----------
New Brighton, N. Y	325	16, 423	19. 78	17, 261	18. 82
Newburyport, Mass	246	13, 947	17. 63	(*)	-----------
New Orleans, La	*c* 6, 843	242, 039	28. 27	275, 000	24. 88
Newport, R. I	379	19, 457	19. 47	20, 000	18. 95
New Rochelle, N. Y	166	8, 217	20. 20	10, 500	15. 80
Newton, Mass	417	24, 379	17. 10	30, 278	13. 77
New York, N. Y	41, 175	1, 515, 301	27. 17	1, 925, 562	21. 38
North Attleboro, Mass	105	6, 727	15. 60	7, 400	14. 18
Northampton, Mass	264	14, 990	17. 61	16, 400	16. 09
Ogden, Utah	177	14, 889	11. 88	18, 000	9. 83
Olean, N. Y	79	7, 358	10. 73	8, 000	9. 87
Omaha, Nebr	1, 149	140, 452	8. 18	(*)	-----------
Oneonta, N. Y	100	6, 272	15. 94	8, 000	12. 50
Ottumwa, Iowa	206	14, 001	14. 71	17, 000	12. 11
Palmer, Mass	127	6, 520	19. 47	(*)	-----------
Passaic, N. J	437	13, 028	33. 54	(*)	-----------
Pensacola, Fla	256	11, 750	21. 78	15, 000	17. 06
Petersburg, Va	579	22, 680	25. 52	(*)	-----------
Philadelphis, Pa	20, 837	1, 046, 964	19. 90	1, 139, 457	18. 28
Pittsburg, Pa	4, 973	238, 617	20. 84	(*)	-----------
Plainfield, N. J	201	11, 267	17. 83	12, 000	16. 75
Plymouth, Pa	202	9, 344	21. 61	(*)	-----------
Port Chester, N. Y	142	5, 274	26. 92	6, 500	21. 84
Portland, Me	807	36, 425	22. 15	40, 000	20. 17
Port Richmond, N. Y	115	6, 290	18. 28	(*)	-----------
Pottstown, Pa	179	13, 285	13. 47	16, 000	11. 18
Poughkeepsie, N. Y	446	22, 206	20. 08	25, 000	17. 84
Putnam, Conn	105	6, 512	16. 12	(*)	-----------
Racine, Wis	282	21, 014	13. 41	26, 000	10. 84
Reading, Pa	1, 257	58, 661	21. 42	70, 000	17. 95
Richmond, Va	1, 720	81, 388	21. 13	85, 000	20. 23
Rochester, N. Y	2, 181	133, 896	16. 28	150, 000	14. 54
Rutland, Vt	175	11, 760	14. 88	(*)	-----------
St. Johnsbury, Vt	100	6, 567	15. 22	(*)	-----------
St. Louis, Mo	8, 710	451, 770	19. 27	540, 000	16. 12
Salt Lake City, Utah	567	44, 843	12. 64	70, 000	8. 10

* Not reported.

a White, 401; colored, 270. Population, white, 31,273; colored, 912. Rate, white, 12.11; colored, 29.63.

b White, 156; colored, 263.

c White, 4,272; colored, 2,571. Population, white, 195,000; colored, 80,000. Rate, white, 21.91; colored, 32.14.

MORTALITY TABLE, CITIES OF THE UNITED STATES, YEAR 1894—Continued.

Cities.	Total deaths from all causes.	Population, United States Census of 1890.	Annual rate per 1,000 of the population for 1890.	Estimated population.	Annual rate per 1,000 of the estimated population.
San Diego, Cal	202	16, 159	12. 50	16, 153	12. 50
San Francisco, Cal	6, 219	298, 997	20. 79	330, 000	18. 84
Santa Barbara, Cal	137	5, 864	23. 36	(*)	....
Sault Ste. Marie, Mich	74	5, 760	12. 84	7, 185	10. 29
Savannah, Ga	1, 225	43, 189	28. 36	(*)	....
Scranton, Pa	1, 556	75, 215	20. 68	90, 000	17. 28
Seattle, Wash	467	42, 837	10. 90	(*)	....
Seneca Falls, N. Y	110	6, 116	17. 98	8, 000	13. 75
Sing Sing, N. Y	179	9, 352	19. 14	(*)	....
Sioux Falls, S. Dak	61	10, 177	5. 99	13, 564	4. 49
Somerville, N. J	873	40, 152	21. 74	52, 600	16. 59
Springfield, Mass	791	44, 179	17. 90	50, 284	15. 73
Spokane, Wash	235	19, 922	11. 79	30, 000	7. 83
Steelton, Pa	104	9, 250	11. 24	10, 000	10. 4
Sterling, Ill	80	5, 824	13. 73	6, 745	11. 86
Stockton, Cal	184	14, 424	12. 75	17, 000	10. 82
Superior, Wis	208	11, 983	17. 35	35, 000	5. 94
Syracuse, N. Y	1, 558	88, 143	17. 67	91, 944	16. 94
Taunton, Mass	575	25, 448	22. 59	26, 954	21. 33
Tiffin, Ohio	178	10, 801	16. 47	14, 000	12. 71
Toledo, Ohio	1, 020	81, 434	12. 52	120, 000	8. 5
Urbana, Ohio	81	6, 510	12. 44	8, 000	10. 12
Utica, N. Y	945	44, 007	21. 47	50, 000	18. 90
Virginia City, Nev	95	8, 511	11. 16	(*)	....
Wallingford, Conn	109	6, 584	16. 55	8, 000	13. 62
Waltham, Mass	298	18, 707	15. 92	22, 000	13. 54
Warren, Ohio	67	5, 973	11. 21	8, 000	8. 37
Washington, D. C	5, 868	230, 392	25. 46	295, 000	19. 89
West Bay City, Mich	200	12, 981	15. 40	14, 000	14. 28
Westchester, N. Y	150	8, 028	18. 68	10, 000	15. 00
Westport, Conn	52	3, 715	13. 99	4, 000	13. 00
Wilmington, Del	1, 161	61, 431	18. 89	70, 000	16. 58
Winfield, Kans	58	5, 184	11. 18	(*)	....
Winona, Minn	271	18, 208	14. 88	22, 000	12. 31
Winston, N. C	199	8, 018	24. 81	(*)	....
Woburn, Mass	298	13, 499	22. 07	14, 450	20. 62
Worcester, Mass	1, 728	84, 655	20. 41	100, 410	17. 20
Yonkers, N. Y	736	32, 033	22. 97	35, 000	21. 02
Youngstown, Ohio	502	33, 220	15. 11	35, 000	14. 34
Zanesville, Ohio	323	21, 009	15. 37	21, 100	15. 30

* Not reported.

Reports are received from the commissioners of immigration at New York and Philadelphia, showing the arrival of immigrants at those ports. Regular weekly reports are forwarded from United States quarantine stations, stating the date and arrival of vessels, port of departure, destination, and treatment of vessel or cargo at quarantine, and date of leaving the station.

Any amendments in the quarantine regulations of the United States are printed in the abstract of sanitary reports, and where reports of inspection of State or local quarantines show them to be insufficiently equipped for the proper disinfection of infected vessels notification as to the disposition to be made of such vessels arriving at these quarantines is issued in the same publication.

Weekly and monthly mortality reports of foreign cities are forwarded by the United States consuls and consular agents, in accordance with the law of February 15, 1893, and published. Such reports vary in number between 120 and 150. Sanitary reports of foreign countries and cities, and special reports of sanitary interest, are also transmitted by United States consuls and sanitary inspectors or officers of the Marine-Hospital Service serving in foreign ports, and published by this division.

Among such reports of sanitary importance, published during the fiscal year, attention may be called to the preliminary report of Dr. S. Kitasato on the "Bubonic plague;" the report on the use of "Antitoxic serum" in diphtheria by P. A. Surg. J. J. Kinyoun; reports on the progress of cholera in Europe by Surgeon Irwin during the summer and fall of 1894; a report on the water supply of the city of Habana by Sanitary Inspector D. M. Burgess; a report on the efficacy of vaccination as exemplified in the epidemic at Bradford, England; reports on the prevalence of plague in China, and on the prophylactic inoculations for hydrophobia as practiced at Odessa, Russia.

During the fiscal year the following number of reports were received from foreign countries, all relating to matters of sanitary importance. These are exclusive of the regular weekly reports mentioned above: Brazil, 55; Cuba, 45; Germany, 39; Turkey, 35; Holland, 22; Belgium, 18; France, 17; China, 18; Russia, 16; Mexico, 15; West Indies, 15; Great Britain, 13; Canada, 10; Gibraltar, 8; Nova Scotia, 6; Japan, 6; Austria-Hungary, 4; Greece, 4; United States of Colombia, 2; Sweden, 2; Argentine Republic, 2; Italy, 2; Venezuela, 2; and one each from Denmark, Switzerland, Nicaragua, Panama, Chile, Norway, India, Honduras, Philippine Islands, Siam, Syria, and Sierra Leone.

Translations are made from foreign sanitary journals and publications, and are published in the abstract of sanitary reports. These translations relate principally to statistical information concerning cholera and to quarantine measures against cholera enforced by foreign governments.

In this division also have been prepared tables showing the prevalence of cholera and yellow fever in foreign countries, the prevalence of smallpox in the United States, and the table showing the years in which yellow fever has invaded seaboard cities of the United States, these tables being inserted in the portions of this report relating to the diseases mentioned.

INVESTIGATION OF WATER SUPPLY, SEWAGE, AND DISPOSAL OF GARBAGE IN THE CITIES AND TOWNS OF THE UNITED STATES.

In view of the wide-spread prevalence of typhoid fever during this fall—this being a water-borne disease—and in view of the general interest now manifested concerning the water supply of cities of the United States and the pollution of rivers which furnish the water supply of some cities by the sewage of others, a preliminary investigation has been begun by this Bureau with the object of collecting information from every city of the United States, showing the source of its water supply, the method of its collection, storage, distribution, and disposal, whether it is under municipal, corporate, or individual control, and whether subject to sewage contamination. A circular is now being prepared, addressed to the mayors of the cities and towns of the United States, calling for the required information. Following is a copy of a letter convening a board to report upon the best method of obtaining and collating the information desired:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 26, 1895.

SIRS: You are hereby appointed a board for the purpose of formulating a plan for obtaining the information hereinafter mentioned.

Section 3 of the act of Congress approved February 15, 1893, entitled an act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service, provides as follows:

"That the Supervising Surgeon-General of the Marine-Hospital Service * * * shall cooperate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases * * * into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, * * * and the Secretary of the Treasury shall * * * make such additional rules and regulations as are necessary for this purpose."

Section 5 of the same act of Congress provides:

"That it shall be the duty of the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury, to perform all the duties in respect of quarantine and quarantine regulations which are provided for by this act, and to obtain information of the sanitary condition of foreign ports and places," etc.; * * * "and the Secretary of the Treasury shall also, as far as he may be able, by means of the voluntary cooperation of State and municipal authorities, of public associations and private persons, procure information relating to the climatic and other conditions affecting the public health," etc.

In pursuance of these sections of the law, and in view of the necessity, which is daily becoming more apparent, for an accurate knowledge concerning the water supply and disposal of same of the various cities of the United States, and because the water supply and disposal of cities in one State are affected by and affect cities in other States by transmission of the germs of contagious diseases, it is my desire to begin a preliminary investigation relating to this subject. It is necessary to have on file in this Bureau a consolidated report showing, with regard to every city of the United States, the source or sources of its water supply, the method of its collection, storage, distribution, and disposal; second, whether this water supply is under municipal, corporate, or individual control; and third, the cost to consumers. Inasmuch as there is so much contamination of water supply by sewage, the inquiry will also include the method of sewage disposal. It is suggested that the inquiries should be arranged under separate heads or divisions, and that a circular embodying the facts required be prepared by the board for distribution to the various health officers and others from whom the information is desired to be obtained; also that a card, with blank form thereon, be provided for each separate head or division, to be filed in the Bureau, after the manner of the usual card index.

You will make report upon this matter as soon as practicable.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

P. A. Surg. C. E. BANKS, *Chairman.*
P. A. Surg. J. J. KINYOUN.
Asst. Surg. W. J. S. STEWART, *Recorder*

HYGIENIC LABORATORY.

REPORT OF THE MEDICAL OFFICER IN CHARGE.

TREASURY DEPARTMENT,
HYGIENIC LABORATORY, M. H. S.,
Washington, D. C., November 1, 1895.

SUPERVISING SURGEON-GENERAL,
United States Marine-Hospital Service.

SIR: I have the honor to submit the following as the report of the Hygienic Laboratory of the Service for the past year:

From August 15 to December 5, 1894, I was absent in Europe, where I was detailed to the International Congress of Hygiene and Demography, which held its session at Budapest, September 1 to 9. Afterwards I visited the bacteriological laboratories of Vienna, Prague, Munich, Paris, Berlin, Hamburg, and London. The greater part of the time was spent in Paris and Berlin, where I made a careful study of the new remedy for the treatment of diphtheria. Under the dates of October 20 and November 6 I transmitted reports thereon, as follows:

The serum therapy of diphtheria.

INSTITUTE PASTEUR, *Paris, October 20, 1894.*

SIR: While attending the eighth session of the International Congress of Hygiene and Demography, held in Budapest in September last, Prof. E. M. Roux, of the Pasteur Institute, read a paper before the section of hygiene on the serum therapy of diphtheria, in which he gave to the world the results of his labors during the past three years. No subject at any congress has, I dare say, been the cause of so much discussion as this, and, on the whole, elicited nothing but praise. The results obtained by Professor Roux in the treatment of cases of diphtheria are so astounding that at first one is almost compelled to ask oneself, "Is this possible?" But when the methods are known and the array of statistics are given, there can hardly remain a trace of doubt. A greater part of what I am going to say has, I know, been published in the daily and medical press, and the only apology I offer for the repetition is that it is well worth reading twice.

It appears that at last we have found a method which is not only good in one disease, but the principle of the method can be applied to many. It at last has opened up a new field for work in infectious diseases.

Availing myself of the kind invitation of Professor Roux to come to the institute, and there learn by practical experience the exact methods employed in the preparation of the antidiphtheritic serum, and also to observe the effects of the new treatment at the hospital for diphtheria, I arrived in Paris on September 20, and immediately commenced my work.

Every facility has been afforded me by the gentlemen connected with the institute to make my stay pleasant and profitable. My sincere thanks are due to all, and especially so to Professor Roux and Drs. Martin and Chaillu.

I have been in no hurry to report on what I have seen, nor to form an opinion of the merits of the treatment. After spending a month at the institute and hospital, I have seen sufficient to enable me to form an intelligent estimate of its value. There is still more to be said in its favor than was claimed for it by Professor Roux at Budapest. It has passed the experimental stage, and will in the future be reckoned in value for the treatment of diphtheria as vaccine is for the prevention of smallpox.

The steps necessary in the preparation of the serum antitoxine may be divided into three: First, the preparation of the toxines of diphtheria; second, the immunization of animals; third, preparation of and conservation of the serum.

Preparation of the toxines.—The toxines are prepared from a bouillon culture of virulent bacilli of diphtheria. As the methods employed in the institute are somewhat different from those of other continental laboratories, and in many instances, as in this, are superior, I will give them in detail: A virulent culture of the bacillus diphtheriæ is selected—one which is fatal to a 500-gram guinea pig in from twenty-four to thirty hours. From this culture a flask of alkaline peptone bouillon is inoculated. After it has remained in the thermostat for twenty-four hours, at a temperature of 36° C., it will be found rich in bacilli. This culture may be termed the stock culture for others which are destined for the toxines. For this latter a special form of culture flask is employed, in order to permit of a special method of cultivation of the bacilli, whereby the toxines formed are much stronger and, it is claimed, somewhat different in their character than when the ordinary methods are employed. The flasks used are known as the Fernbach flasks, and are large, flat-bottomed Florentine flasks, provided with a tubulature on the side within about an inch of the bottom. The neck and tubulature are constricted near the mouths for the reception of the proper cotton plugs. These flasks are filled to a short distance below the tubulature with an alkaline peptone bouillon and then sterilized. Soon after this the flasks are inoculated with the bouillon culture of the bacillus diphtheriæ, about 40 c. c. to each flask. They are then placed in the thermostat for twenty-four hours in order to "start" them, when each flask is connected with an aspirator and a current of air is slowly kept moving through the flask in the direction from the mouth and to the tubulature. The air before entering the flask is passed through an ordinary wash bottle, in order that it may be moist, so as to prevent the evaporation which would occur as well as to maintain the best conditions for culture. This method, so far as I know, is practiced only in this institute. It is the discovery of Dr. Fernbach, who observed that so long as the bacterium remains in the active living state—or, in other words, maintains its integrity—little or none of those substances known as toxines or ptomaines are set free; but as soon as you present the conditions most favorable for the development of bacteria the life of the individual bacterium is shortened and it completes its cycle, ending in proliferation and setting free the nucleins from it.

When a bacillus such as that of diphtheria is grown under the same conditions as cited above there is a greater quantity of the nucleins formed than would occur under the ordinary conditions of culture.

These flasks are kept at a temperatere of 37° C. for from three to four weeks. At this time the bouillon is rich in flaky masses of the bacilli. If examined microscopically the masses are found to be nearly, if not all, disintegrated bacilli. Sometimes a few bacilli are encountered, but they have in a great measure lost their characteristic form.

Filtration of the cultures.—Without further preparation the cultures are filtered through a Chamberland filter tube into sterilized flasks and kept until required for use. Each lot of the toxines is tested for virulency by standardizing it by injections into guinea pigs. The usual strength, being $\frac{1}{10}$ c. c., will kill a 500-gram guinea pig within twenty-four hours.

The filtrate will preserve its virulency for a considerable time, provided it is kept away from light and maintained at an equal temperature. Boiling the cultures or even heating them to a degree that will kill the bacilli is not practiced, for it has been found that either process impairs the strength as well as changes some of its properties. Large quantities of cultures are kept growing, a special room being employed for this purpose, as each horse will require a large amount of the toxine to immunize it and to maintain the antitoxine in the blood after immunization is completed.

Immunization of animals.—The antitoxine for the treatment of diphtheria is in solution in the blood of an animal rendered refractory to the disease. The manner of producing immunity in an animal may be performed in one of two ways—by injections of the toxines or by inoculations of the bacilli. The former method has been found to be the best, and at present is the only one in use. In the experiments of Professor Roux and Dr. Martin animals of all kinds were used, but now they use the horse, as it has been found to be the most satisfactory. It stands the process of immunization better, and gives a serum stronger than other larger animals, i. e., in the same length of time, besides furnishing a larger amount of serum. The present method of immunizing the horse is somewhat different in its details from that given in Professor Roux's paper, being much simpler.

A horse is selected which is sound, having been subjected to injections of tuberculin and mallein, the age not playing any particular part; usually it is from six to eight years—a cab horse, which has seen better days. At first a trial injection of the toxine is made, usually less than a cubic centimeter, carefully noting the general and local reaction. In some horses even the trial dose has a profound effect, but usually there is quite considerable local and general reaction. If the animal becomes quite ill, a small quantity of Gram's solution is added to the next dose, and even the next following if the reaction is too strong. After this the horse bears the increasing dosage with little or no discomfort.

The general plan for the injections is as follows: First day, ½ c. c. of pure toxines, of which $\frac{1}{10}$ c. c. fatal to 500 grams of guinea pig; eighth day, 1 c. c.; fourteenth day, 1½ c. c.; twentieth day, 2 c. c.; twenty-eighth day, 3 c. c.; thirty-third day, 5 c. c.; thirty-eighth day, 8 c. c.; forty-third day, 10 c. c.; forty-seventh day, 20 c. c.; fifty-first day, 30 c. c.; fifty-sixth day, 50 c. c.; sixty-second day, 50 c. c.; sixty-eighth day, 60 c. c.; seventy-fourth day, 100 c. c.; eightieth day, 250 c. c.; eighty-eighth day, 250 c. c.

When the first injections are given there is quite a marked local and general reaction to the poison; there is an œdema at the point of the injection, which is followed by a distinct inflammatory process, hard in the center and soft and œdematous at its periphery. The general reaction is manifested by a rise in the temperature 1°–2° C., loss of appetite, and occasionally cramps. The reaction must be taken as the guide in the future dosage, and a sufficient time must be allowed to elapse between the injections for the complete recovery from the general and local effects. As the quantity of the toxines is increased, the general effects generally decrease, perhaps a rise of a degree for twenty-four hours. The local effect partakes more of an œdema, and has the character of an inflammation.

At a certain stage, usually after two months' treatment, when 50–60 c. c. can be injected without harm, there is no general reaction, but a large œdema at the site of the injection, which disappears within from twenty-four to forty-eight hours. Toward the last, even when 200–300 c. c. are given, there is only an enormous œdema, which disappears within from twelve to eighteen hours. When these inordinately large quantities can be given with only a local reaction being manifest, the horse has come well under the influence, and the blood will be found to be rich in the antitoxine.

There is a curious fact well worth noting: At the end of the second month of the treatment, when the horse can bear as much as 50–60 c. c. of the toxines without discomfort, the blood will be found to contain but little of the antitoxine. The antitoxine only appears after repeated stimulation of the cells (?) by the large and frequent doses of the toxines.

The subcutaneous injections do not yield a serum as rich in the antitoxines as when the toxines are injected directly into the blood current. When it is desired to do this, toward the last of the treatment, the toxines are injected directly into the jugular vein. The process is tedious and requires a longer time, and for practical purposes has not been found so satisfactory as the simple subcutaneous injection. The strength of the serum is tested by using young guinea pigs of 500 grams weight. One gram of the serum usually will protect 50,000 grams of guinea pig against a fresh virulent culture of the baccillus diphtheriæ. This is the strength that is used in the hospitals. By the intravenous injections a serum of the protective strength of 1 to 100,000 can be obtained. For practical purposes the 1 to 50,000 strength has been found as satisfactory as the stronger.

Withdrawal of blood—Preparation of the serum.—The abstraction of blood from the horse is a simple procedure, the blood being drawn from the jugular vein by means of a special trocar and canula. The trocar and canula are about 4 millimeters in diameter, and are somewhat larger than the ordinary form. The top of the canula is shouldered so as to receive a metal plug, which is also canulated. This metal plug is attached to a rubber tube a half meter in length; to the other end of the tube is attached a glass tube of 10 cm. length. The instruments, tubes, etc., are sterilized, and then kept in a 5 per cent solution of carbolic acid. Ordinary wide-mouthed bottles of 2,500 c. c. are used for receiving the blood. These are prepared by having pieces of paper tied over the mouths, and over this another paper in the shape of a hood is placed; the bottles are then sterilized. When all these preliminaries are finished, the horse is made ready for the bleeding; a small "twitch" is placed around the upper lip and made taut; the blindfold is thrown over the eyes; the hair is next clipped from over the place for the insertion of the trocar, and the place is then scrubbed with carbolic acid, 5 per cent solution. The skin is incised sufficiently to allow the trocar to pass through the tissues without the force that would be required to puncture the vein if the skin was intact, thus preventing accidental wounding of the vein. The jugular vein is compressed by the hand and the trocar is passed well into the vein, the point being directed downward. While this is being done, the assistant holding the bottle plunges the glass tube into it, when the trocar is withdrawn, and the canulated plug is inserted into the canula.

Six to eight liters are taken from the horse at one bleeding. When the bottles are filled to the desired height the blood is allowed to coagulate, when it is placed in the ice chest. Within twenty-four hours the serum will be found to have separated. Usually from 2½ to 3 liters are obtained from each bleeding. The serum is withdrawn from the bottles by means of the Pasteur filling pipettes, and transferred to the proper receptacle, for use or preservation. The manner of its preservation is exceedingly simple: A small piece of camphor is placed in each bottle or flask; this, it is claimed, tends to preserve it, should any chance microorganism be dropped in, and exerts an inhibitive influence against its deterioration. If there is a suspicion that the serum has become contaminated in the various manipulations, it can be filtered through a Chamberland filter. This process will doubtless be applied when it is desirable to keep the serum for a long time. The serum can also be desiccated in vacuo. In this state it can be preserved for a long time without deteriorating, although it loses its strength to a considerable degree in the desiccating process. There is another objection to it in the dried state: It is the fact that it causes considerable irritation when injected subcutaneously, which does not follow the injection of the serum.

It is also noted that the serum has a tendency to deteriorate after being kept for awhile; especially is this to be observed when it is exposed to light or subjected to variations of temperature. This disadvantage they hope soon to overcome. I do not mean that it will not keep for two or three months before it begins to show deterioration. It has much the same behavior as vaccine.

Mode of administration, etc.—To illustrate the exact methods which are used here in the administration of the serum, I can do no better than to quote in extenso from a lecture given by Dr. Louis Martin to the physicians of Paris on Sunday, October 26, 1894:

"A syringe containing 20 c. c. is used. It is sterilized in boiling water. It is composed of a barrel of glass and metal, the glass and metal being separated by two india-rubber washers; (2) of an india-rubber piston; (3) of an adjustment consisting of an india-rubber drainage tube 10 cm. in length; (4) of a needle 4 or 5 cm. long. This tube is placed between the syringe and the needle for the convenience of administering an injection in case the child should move.

Before sterilizing, the syringe should be ascertained to be in good working order, the permeability of the needle should be ascertained, and the two india-rubber cushions through which the piston passes should be in good condition. Having taken these precautions, and leaving the screw which is attached to the glass cylinder slightly open, immerse the syringe in water and keep the water at the boiling point for five minutes. Withdraw the syringe and allow it to cool.

Having charged the syringe with serum, take it in your right hand between the last three fingers and the palm. Between the thumb and forefinger take the needle close to its base; that is to say, at its point of junction with the india-rubber drainage tube. With the left hand take up a fold of the skin of the side and insert the needle at the base of this fold so as not to penetrate the subcutaneous cellular tissue when you make the injection.

When the needle is inserted change the hand that holds the syringe. After this, with your right hand gently press the piston of the syringe while you impart to it a slightly rotary motion. Charge the syringe with precisely the quantity to be injected.

Before injection the skin must be thoroughly cleansed with an antiseptic solution (preferably bichloride of mercury 1 to 1,000). The injection made, cover the spot with absorbent cotton. This cotton forms a sort of collodion with the serum which flows back through the orifice, and thus completely closes it. A slight œdema occurs during the process of injection, but disappears within fifteen minutes or half an hour. There is no general reaction.

It has already been stated that serum may be used preventively or therapeutically. In other words, it may act as vaccine or a remedy. Under the following circumstances it may be employed as a preventive:

When a case of diphtheria occurs in a family or among a number of children, the other children belonging to the family or group should be protected by one injection of 5 c. c. of serum for children of less than 10 years and 10 c. c. for children over that age. This will generally prevent an epidemic, or, in case of some of the children having been infected from the first case, it will mitigate the attack. It is not now possible to state how long this immunization will last.

With regard to the therapeutic use of the antidiphtheritic serum, there is one general rule to be followed under all circumstances: When the physician suspects a case of diphtheria he should immediately inject under the skin of the side 20 c. c. of serum at one dose. When the patient is over 15 years of age it is preferable to inject 30 or 40 grams at the same time, but with two injections, one on the right side, the other on the left, in 15 or 20 gram doses. No serious objection can be made to these injections. The only risk incurred is that of giving rise to slight urticaria. If the case is veritable diphtheria no precious time will have been lost.

As soon as the injection is made, or, better still, before making the injection, in order not to disturb the patient after the operation, open his mouth, charge the wire spatula from the false membrane or the mucus of the posterior pillar, and without loss of time plant your two serum tubes in the manner previously described.

Twenty-four hours later examination of the tubes will give important therapeutic indications. If there is no diphtheria, discontinue the serum. If there is diphtheria, examination of the cultures will show whether it occurs pure or in combination with other symptoms.

The indications for serum therapy depend on (1) the condition of the pulse, (2) on the temperature, (3) on respiration. The local conditions (false membrane) supply useful indications even in the absence of bacteriological examination, but the latter furnishes analogous indications and is more reliable. Neither the appearance nor quantity of the false membrane can decide the main point in prognosis and treatment, namely, whether the diphtheria is pure or complicated.

The local treatment in diphtheria.—Treatment with serum does not rule out all local treatment. Roux stated this most emphatically at the congress of Budapest. He proscribes all traumatism, and, in consequence, all caustic applications, and he forbids treatment with carbolic acid and bichloride, experience having shown the ill effects from combining serum treatment with treatment by carbolic acid or bichloride. During a period of eight days the writer treated the children in the diphtheria pavilion concurrently with serum and bichloride. He had three deaths from diphtheritic angina in which tracheotomy had been performed, while cases of croup, treated during the same week and in the same surroundings with serum exclusively, recovered. The writer did not feel authorized to push his experiments farther.

But while Roux discouraged the use of carbolic acid, he advised washing the throat three times a day with boric solutions or 50 grams of Labarraque's solution in a liter of water. These washings have the advantage of destroying any germs that may be present and of preventing the microbic angina, which may succeed the angina of a cured case of diphtheria. Roux is so little opposed to local treatment that he advises touching the throat with compound blue, and has recently tried a mixture of equal parts of camphor and menthol reduced to a viscous state in a mortar. The writer, in all the cases treated by him with serum, touched the throat with salicylated glycerin (5 per cent of salicylic acid). In light cases the false membrane is easily detached from the throat and the mouth is cleansed so rapidly that the local treatment need not be long continued.

It is needless to add that serum treatment does not change the alimentation of the child. It must be well nourished in all cases in which serious albuminuria does not impose an exclusive milk diet.

Pure benignant diphtheritic angina.—Let us take a case of pure diphtheria and follow its clinical history:

On the first day, following the general rule, we injected 20 c. c. of serum. The pulse was then 148, temperature in the evening, 38°; no trouble in respiration; no albumen.

Twenty-four hours after injection the pulse fell to 108 and the temperature in the evening, far from increasing, had declined a little (37.8° instead of 38°). This slight diminution, occurring coincidentally with a considerable decline in the pulse, made a second dose of serum unnecessary.

Diphtheritic angina of a serious character.—On the first day the writer administered 20 c. c. of serum, but this dose was found to be insufficient, for on the following day there was an elevation of three-tenths in temperature, and the pulse was accelerated from 144 to 164. This simultaneous increase indicated that the disease was not eradicated. It was therefore necessary to repeat the dose, giving 20 c. c. at one time, or, better still, 10 c. c. in the morning and 10 c. c. in the evening.

On the third day the temperature declined one degree. The pulse kept at the same point, 160, and albumen appeared in considerable quantity. Prognosis had to be reserved, since for one favorable symptom—lower temperature—there were two unfavorable symptoms—accelerated pulse and considerable albumen. A fresh dose of 10 c. c. was therefore administered. On the following day pulse and temperature were alike lowered, the quantity of albumen was slightly diminished, and the treatment was stopped. The patient recovered.

In conclusion, pure diphtheritic angina requires from 20 to 50 c. c. of serum, administered in the course of three days. With this treatment cure is the rule. I have only to recall here the figures quoted by Roux at Budapest: 120 cases of pure diphtheritic angina, 9 deaths. In regard to these 9 deaths it should be stated that in 1 case the child succumbed to tuberculosis, in 1 to measles, and that the 7 others died less than twenty-four hours after reception into hospital.

We now reach associated diphtheritic angina.

The writer will not insist here on the cases in which the diphtheritic bacillus is found associated with the little Brison coccus. This association does not complicate prognosis.

Diphtheritic angina associated with streptococcus.—We have here selected the associations which most complicate prognosis, namely, association of the diphtheritic bacillus with the streptococcus and staphylococcus.

On the first day 20 c. c. were administered. Twenty-four hours later all the lines were descending—that is to say, and this fact is of great importance, the evening temperature was lower than that of the morning. Ten c. c. only were then administered. Microbic association being granted, it was preferable to inject on the second day 20 c. c. instead of 10 c. c. The results observed on the succeeding day confirmed the advisability of thus increasing the dose.

On the third day one of those surprises occurred which often manifest themselves in cases of associated angina: All the lines went up suddenly and considerably, and, a very serious symptom, respiration was accelerated to such a degree that an attack of bronchial pneumonia was apprehended. It was therefore urgent to increase the dose and to administer 20 c. c. This was done.

On the following day the symptoms were all ameliorated. All the lines declined sensibly; the evening temperature was even lower than that of the morning, and if the microscope had not apprised us of association with the streplococcus we would have discontinued the treatment. On the fourth day a fresh dose of 10 c. c. was administered to provide against a new attack. Albumen not being present in large quantities, this dose was not exceeded.

On the fifth day pulse, temperature, and respiration offered more favorable indications. Albumen, it is true, had slightly increased, but not sufficiently to necessitate a fresh dose of serum. But if the augmentation had been more considerable we would still have injected 5 or 10 c. c.

The presence of albumen in the urine indicates the action of the diphtheritic toxine on the abdominal filter. It is therefore advisable to slightly increase the doses of antitoxine to neutralize as much as possible the effect of the toxine on the kidneys.

In this connection it may be well to reply to an objection that has been raised, Has antitoxine an injurious effect on the kidneys?

To answer this question it is only necessary to quote the figures cited by Roux. Before treatment with injections of antitoxine, albumen was found to be present in two-thirds of the cases of pure diphtheritic angina; after treatment it was found in scarcely half the cases.

We pass over association with staphylococcus. Its development does not differ from the preceding, and its gravity is secondary to the first.

In the three cases just presented, and which I have selected as typical, the patient recovered. When the pure diphtheritic angina ends in death, this generally occurs in less than twenty-four hours after commencement of treatment. In some cases of pure but toxic angina—that is to say, in cases of general infection—death may supervene by cachexia, paralysis, cardiac affection, kidney troubles, etc., seven or eight days after the commencement of treatment. These cases are very rare (1 or 2 per cent at most), but the writer felt obliged to mention them. Generally, in cases of associated angina where death is delayed, it is due finally to pulmonary complications, or even sometimes to generalized infection, caused by associated microbes.

It now remains to consider croup, otherwise diphtheritic laryngitis.

Nonoperated cases of croup should be treated in the same manner as angina, always taking into account the indications furnished by respiration.

As in the case of angina, pure croup should be distinguished from—

Associated croup.—Case: On the first day, the day on which tracheotomy was performed, 20 c. c. of serum were injected, according to the general rule laid down. The dose was repeated on the second day. On the third day pulse and temperature were ameliorated, respiration was increased, and no albumen was present. At the the third dose 10 c. c. were administered.

On the following day the tube was taken out, the child breathed well; temperature and pulse continued good.

Croup associated with streptococcus.—Case: The case is not so simple with associated croup. In the typical case selected for illustration the prognosis was extremely grave on the day succeeding tracheotomy. In spite of the 20 c. c. administered on the day of the operation, all the lines were shown to be ascending. Albumen was found in considerable quantity. It was found necessary to repeat the dose.

On the day following this second dose there was general amelioration. All the symptoms were improved, but in view of the fact of microbic association treatment was continued for two days in doses of 10 c. c. a day.

In spite of these repeated doses, respiration was accelerated on the fifth day. Broncho-pneumonia, so frequent and so terrible a complication in associated croup, threatened the patient. It was considered advisable to administer a new dose of serum, but the quantity was reduced to 5 c. c. on account of the fall of 1° in temperature and considerable diminution in the quantity of albumen.

On the sixth day the tube was removed. The child recovered, but a fatal result in such cases is only too frequent.

To prevent the development of broncho-pneumonia in cases of this sort, the writer always injects 1 c. c. of mentholated oil once a day into the tube. This mentholated oil consists of: Menthol, 4 grams; oil of sweet almonds, 100 grams.

THE STAGES OF SERUM THERAPY.

Summary.—In 1883 Klebs discovered the diphtheritic bacillus in the course of experiments with false membrane.

In the following year, 1884, Loeffler isolated the microbe, indicated its preferred culture medium, reproduced false membrane in animals, but failed to reproduce the paralysis. As a conscientious observer, he required fresh proofs to establish in an indisputable and absolute manner the specific nature of the Klebs-Loeffler bacillus.

Roux and Yersin, by reproducing diphtheritic paralysis (memorial of 1888), completed the proof desired by Loeffler.

Continuing their investigations, they discovered the diphtheritic toxine, and with it reproduced diphtheritic paralysis, as they had previously done with the microbe.

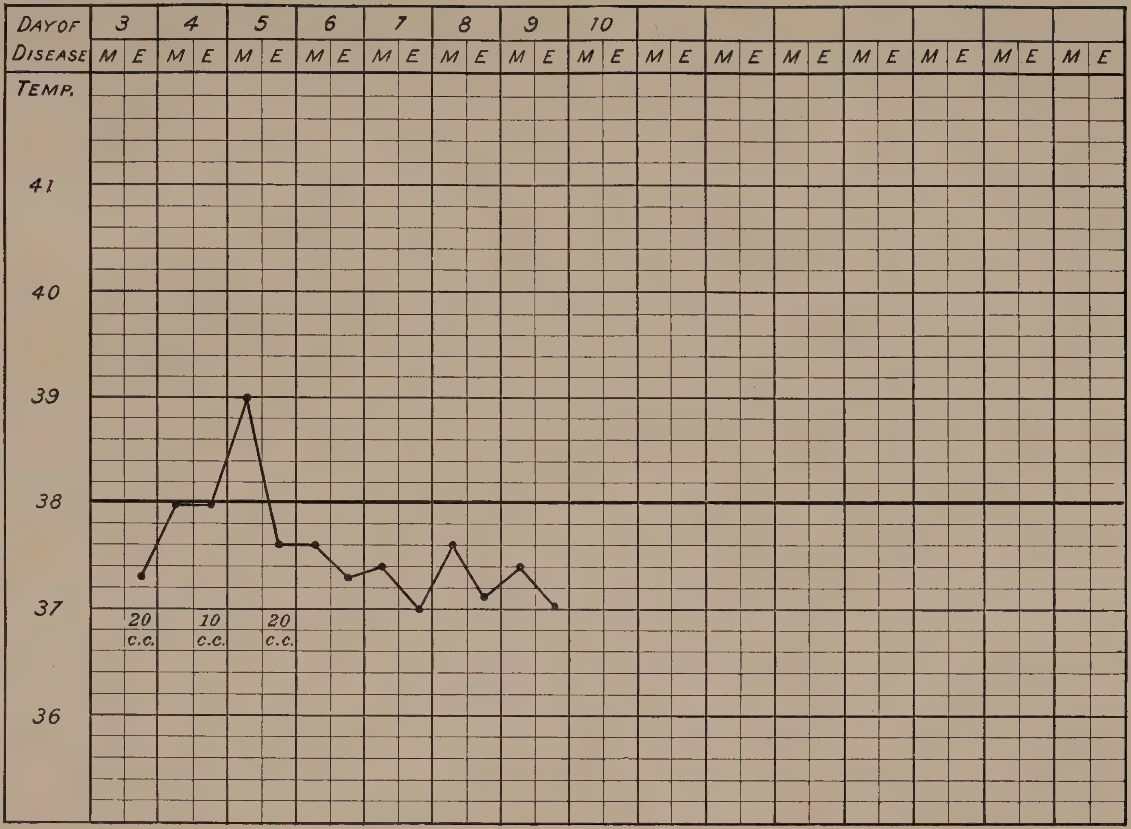
On the basis of these noble experiments, and confirming their results, the German bacteriologists undertook vaccination against diphtheria. In the first rank of these may be named Carl Frankel and Behring.

Behring, in conjunction with Kitasato, discovered the principle of serum therapy for tetanus and diphtheria. From that moment the attempt was commenced in both France and Germany to apply this principle to the treatment of diphtheria in the human subject.

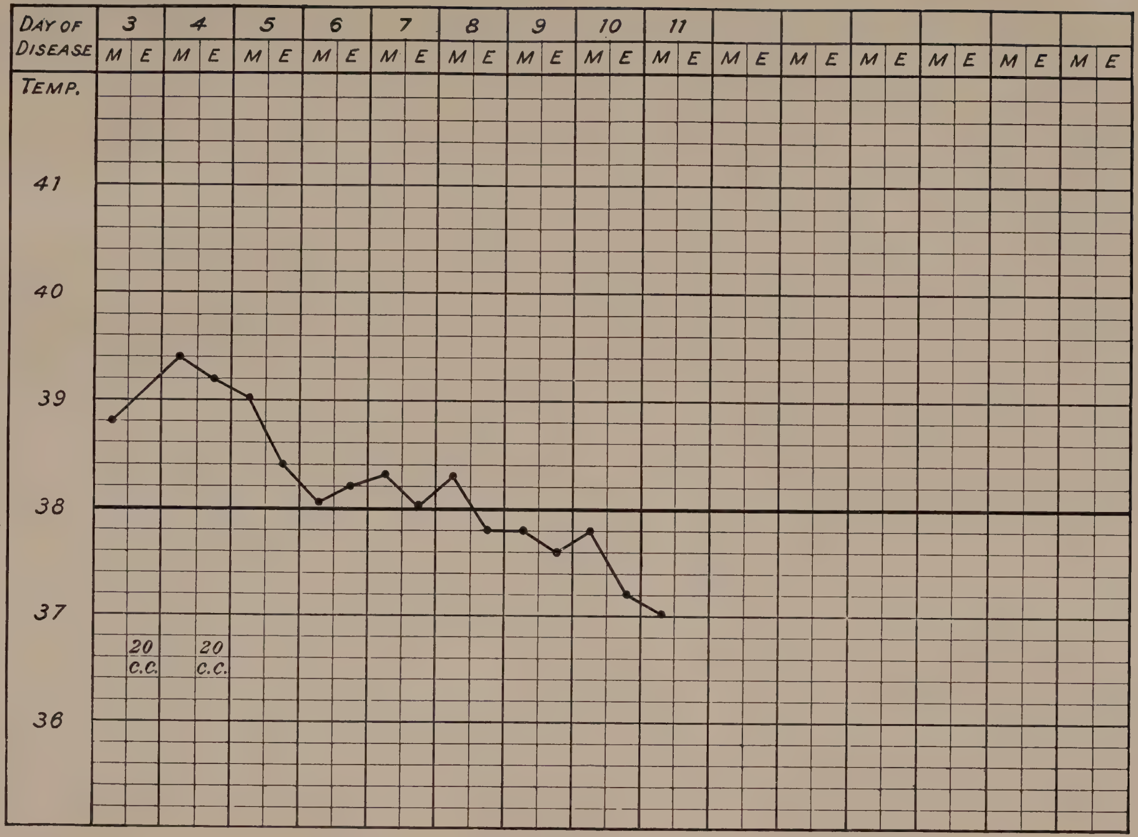
In the galaxy of workers who have pursued the study of diphtheria and its treatment, two names should be associated in the first rank—the name of the German Behring and that of the Frenchman Roux.

But above all other names towers the name of Pasteur."

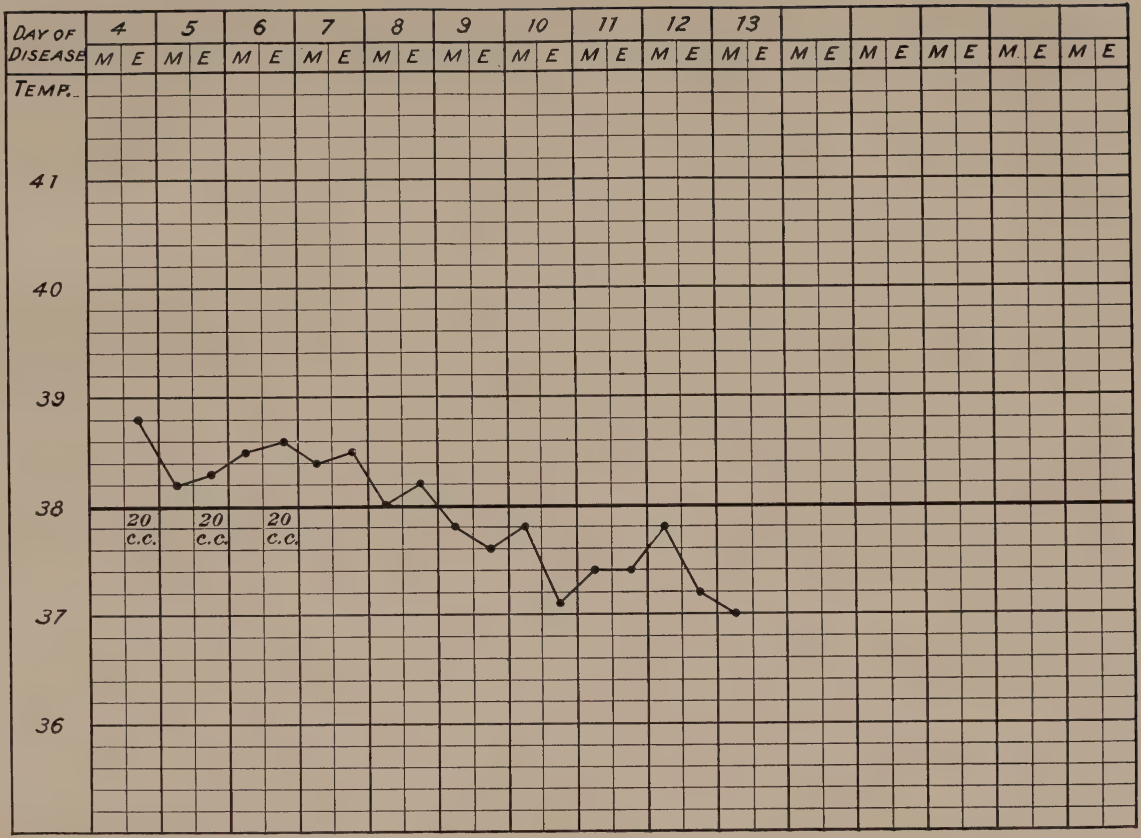
During my stay in Paris ample opportunities have been afforded me to witness the effects of the serum therapy in the treatment of cases of diphtheria in the hospital for sick infants. From my observations made therein for one month I can but corroborate the statements already published. I have been able to follow the cases from the time they entered the hospital until their discharge, noting everything



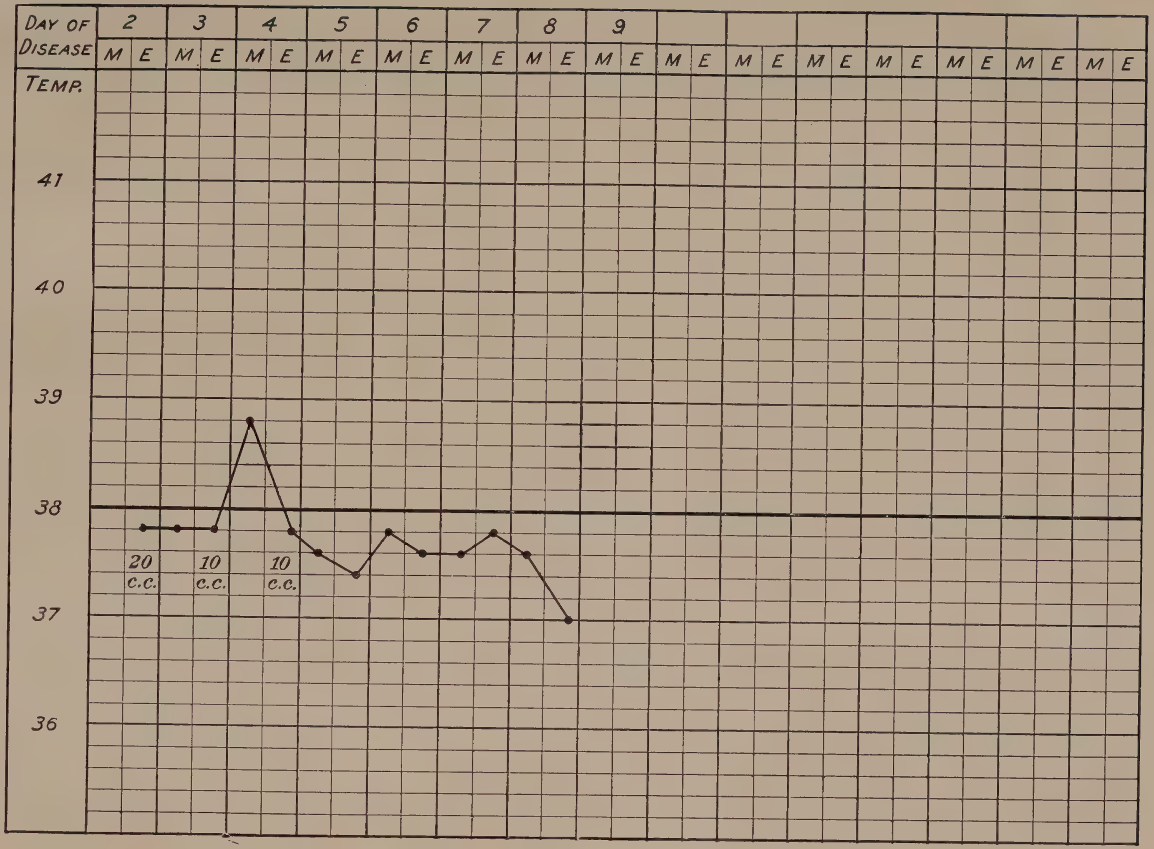
CASE I. Age 2 years. Faucial diphtheria.



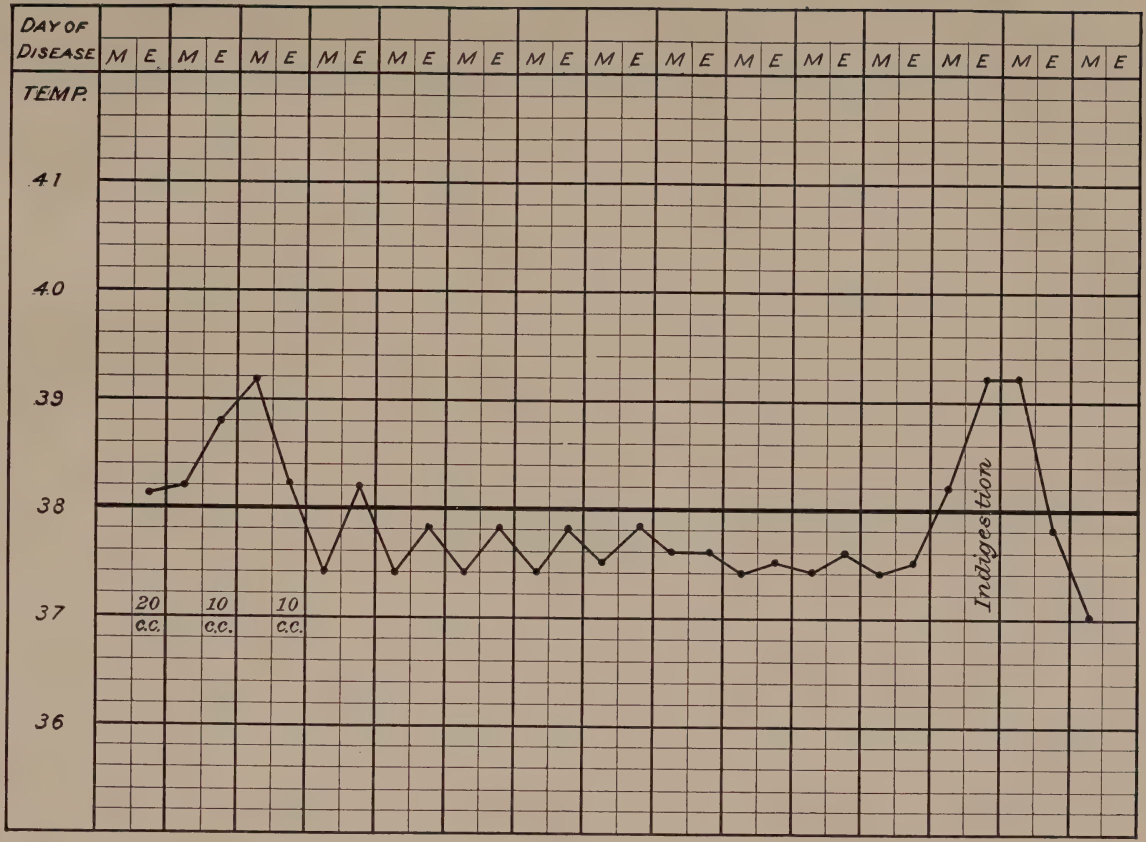
CASE II. Age 20 months. Faucial diphtheria.



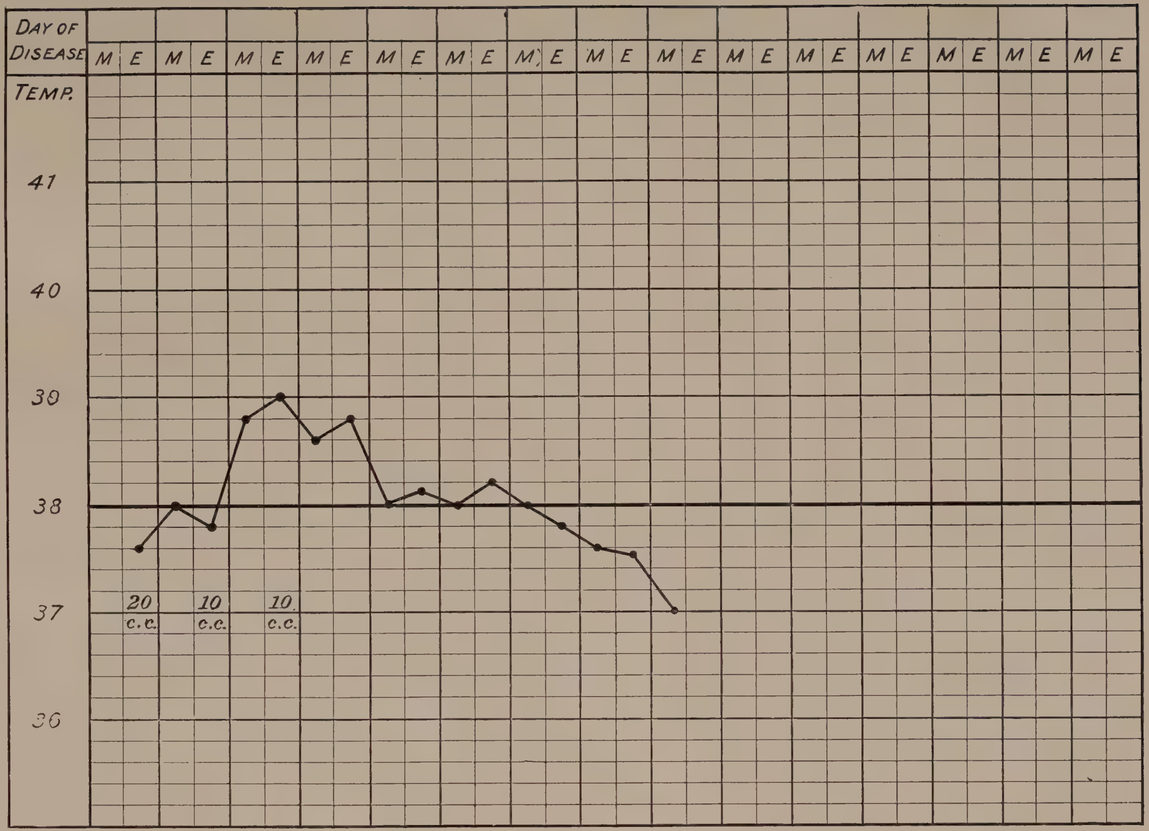
CASE III. Age 4 years. Faucial diphtheria.



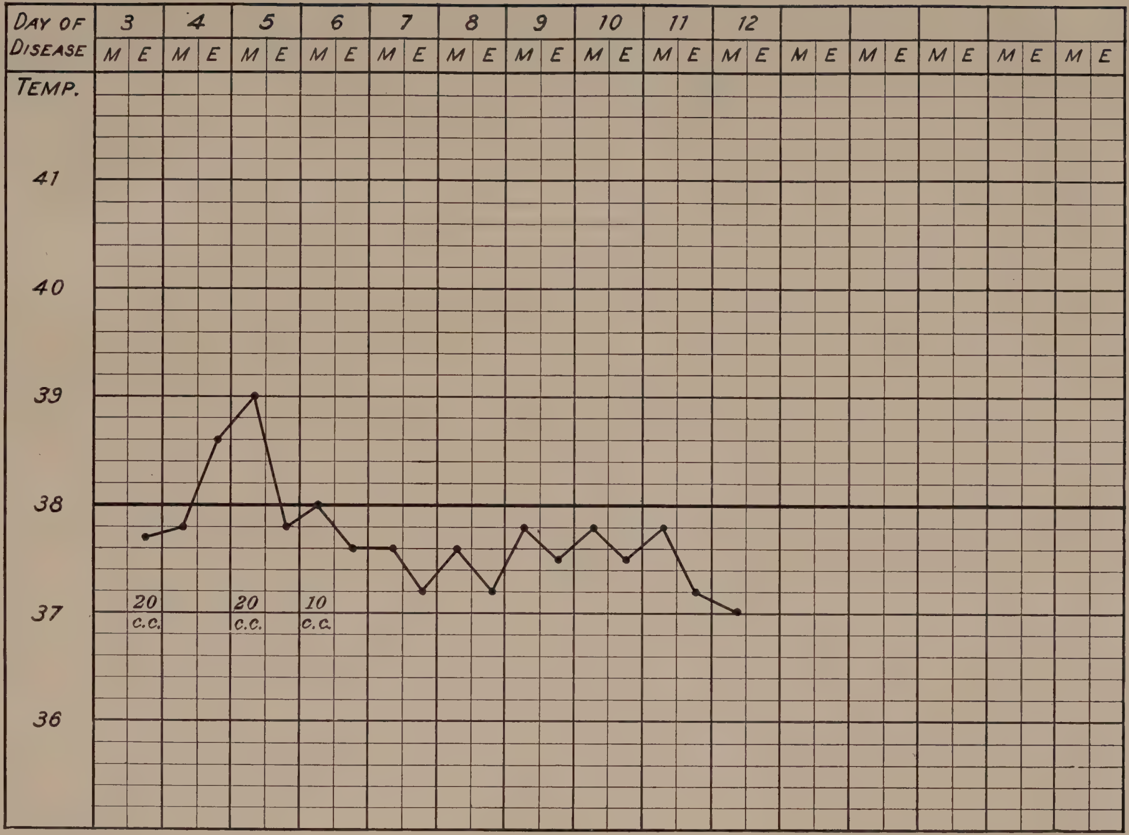
Case IV. Age 5 years. Faucial diphtheria.



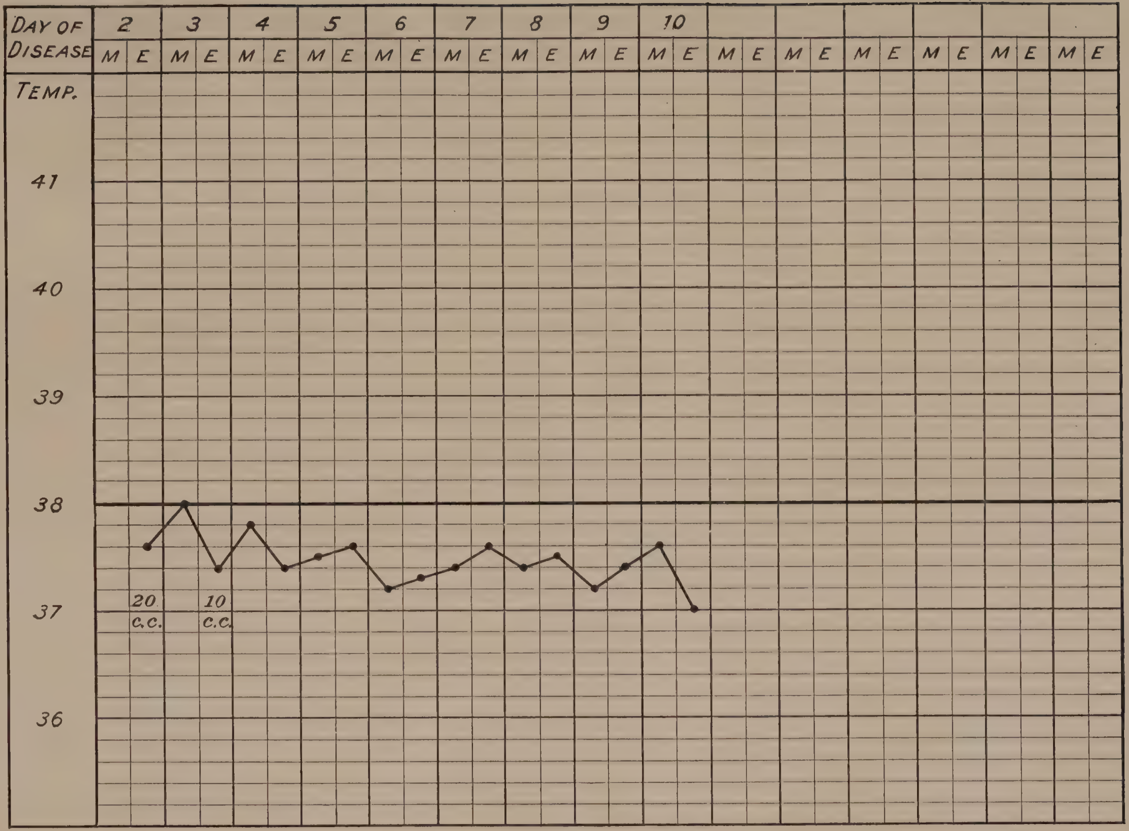
CASE V. Age 3 years. Faucial and tracheal diphtheria.



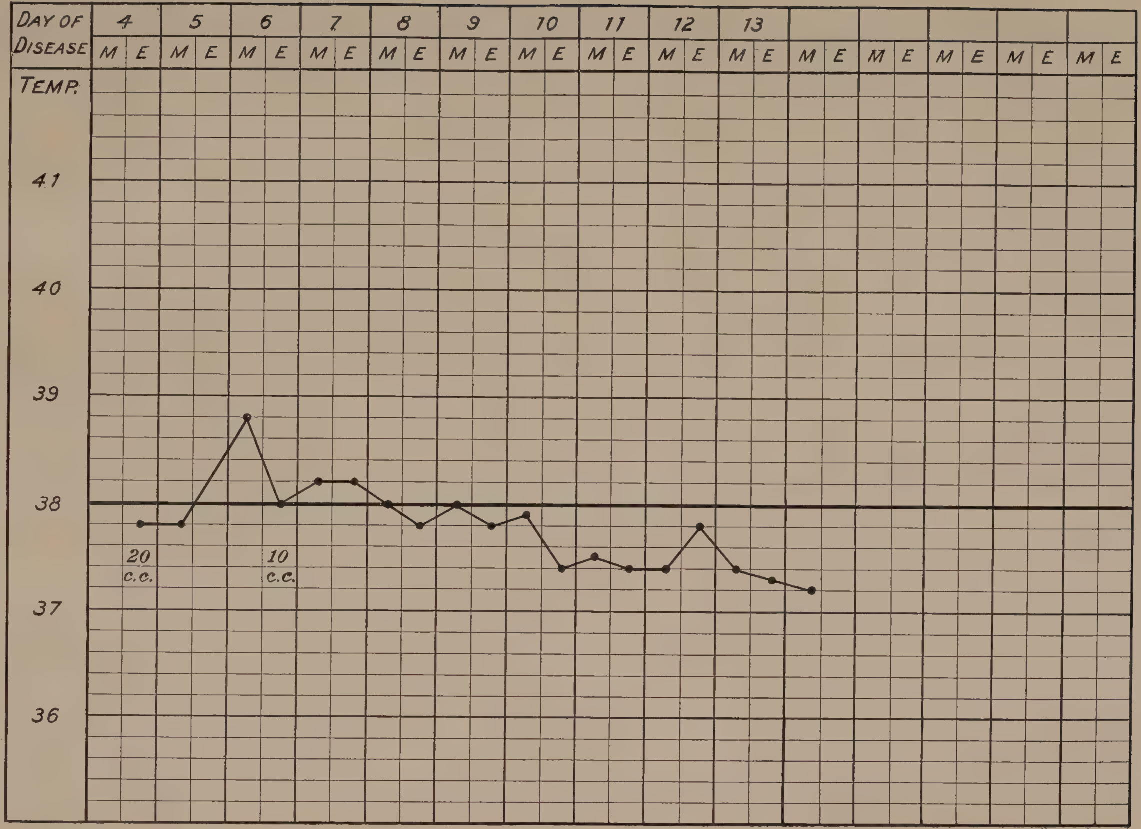
CASE VI. Age 4½ years. Faucial diphtheria.



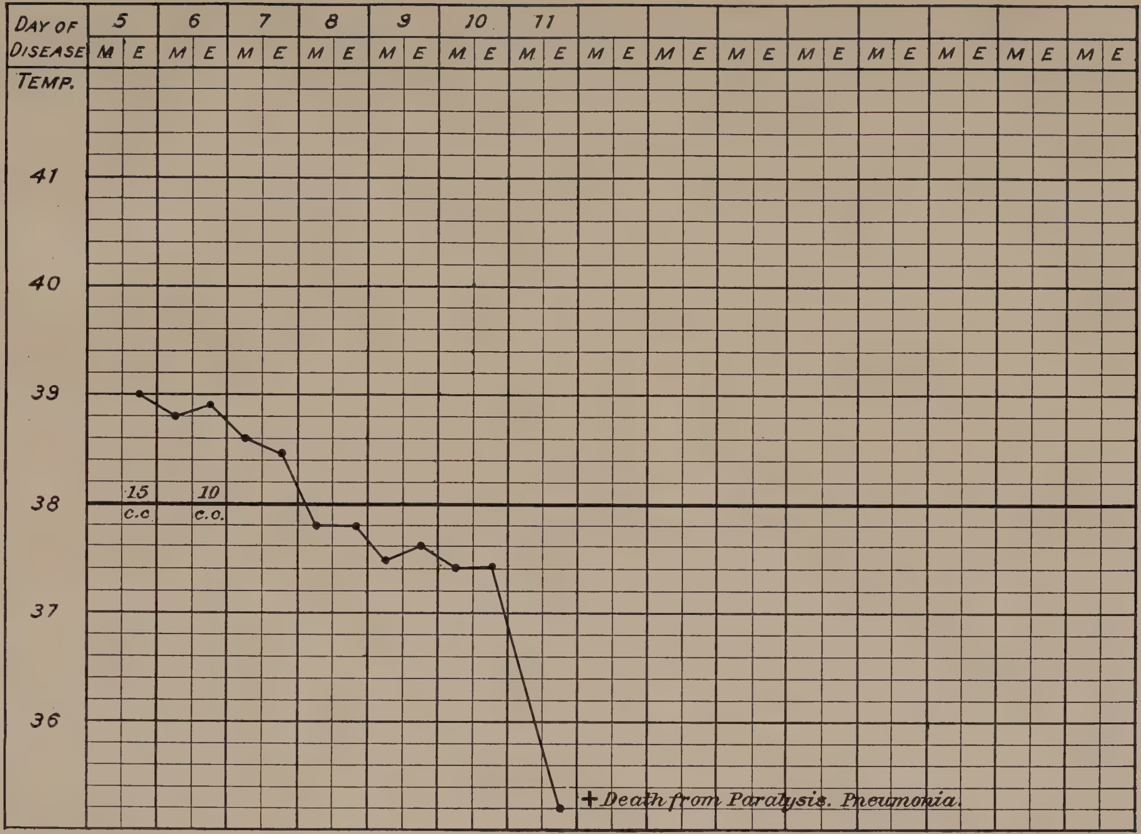
CASE VII. Age 2½ years. Faucial diphtheria.



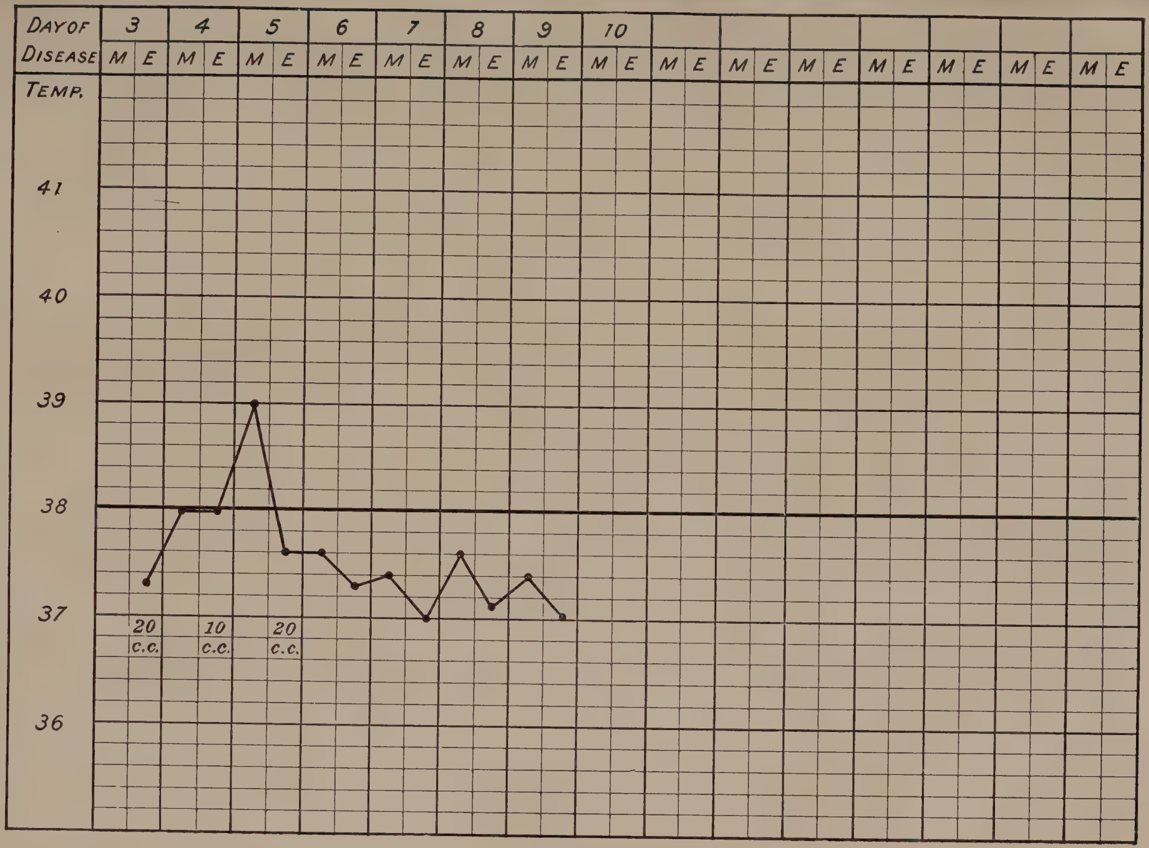
CASE VIII. Age 5 years. Faucial diphtheria.



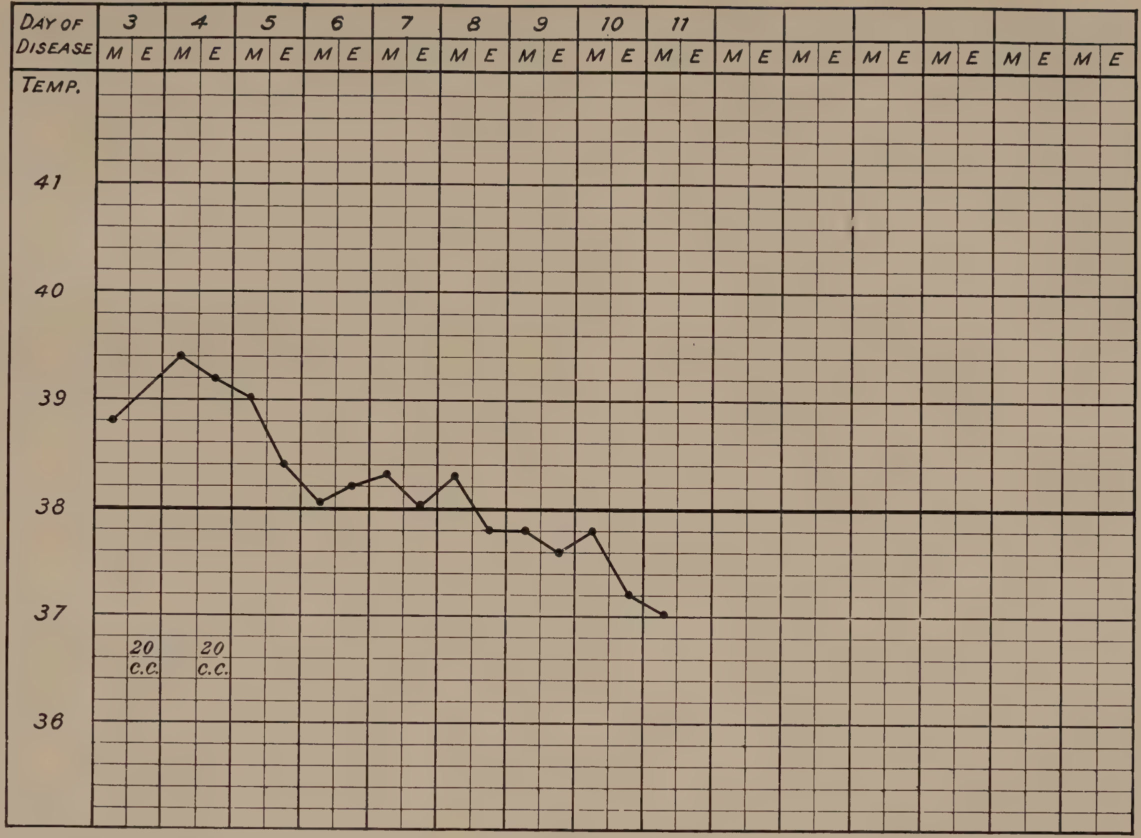
CASE IX. Age 2½ years. Faucial diphtheria.



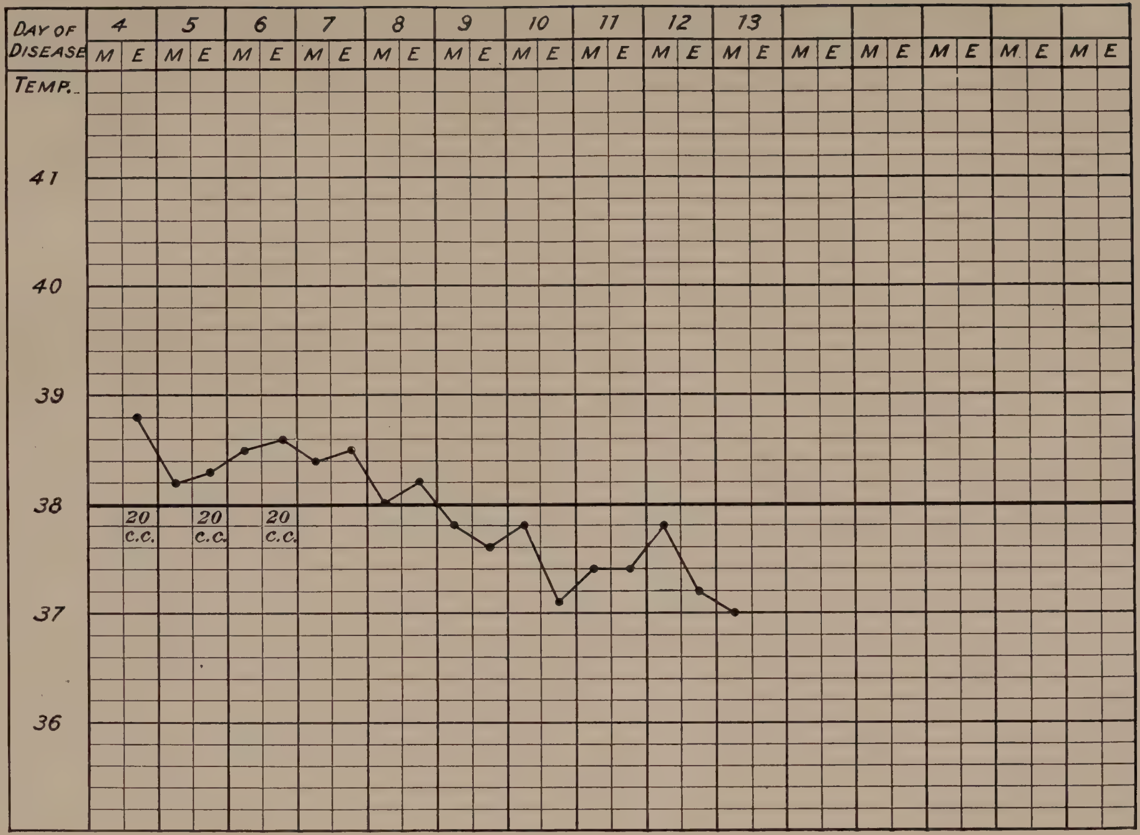
CASE X. Age 18 months. Faucial and tracheal diphtheria, associated with streptococcus and straphyloccus.



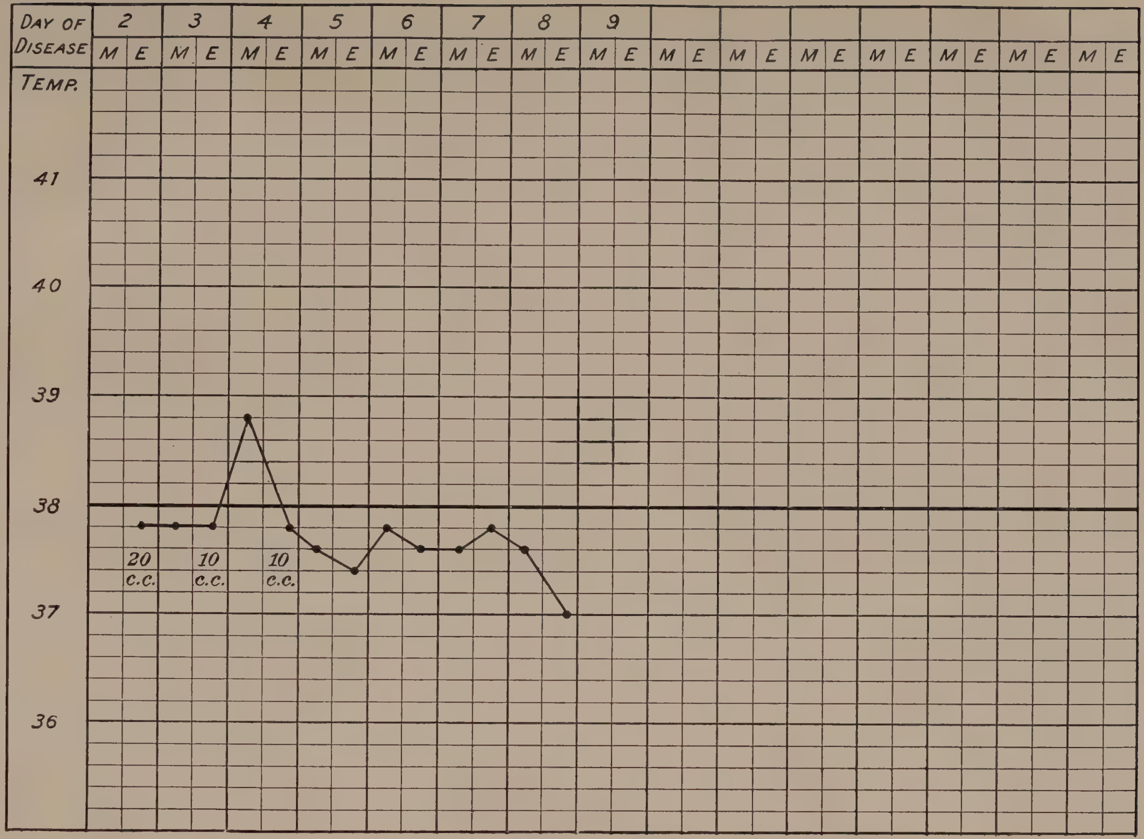
CASE I. Age 2 years. Faucial diphtheria.



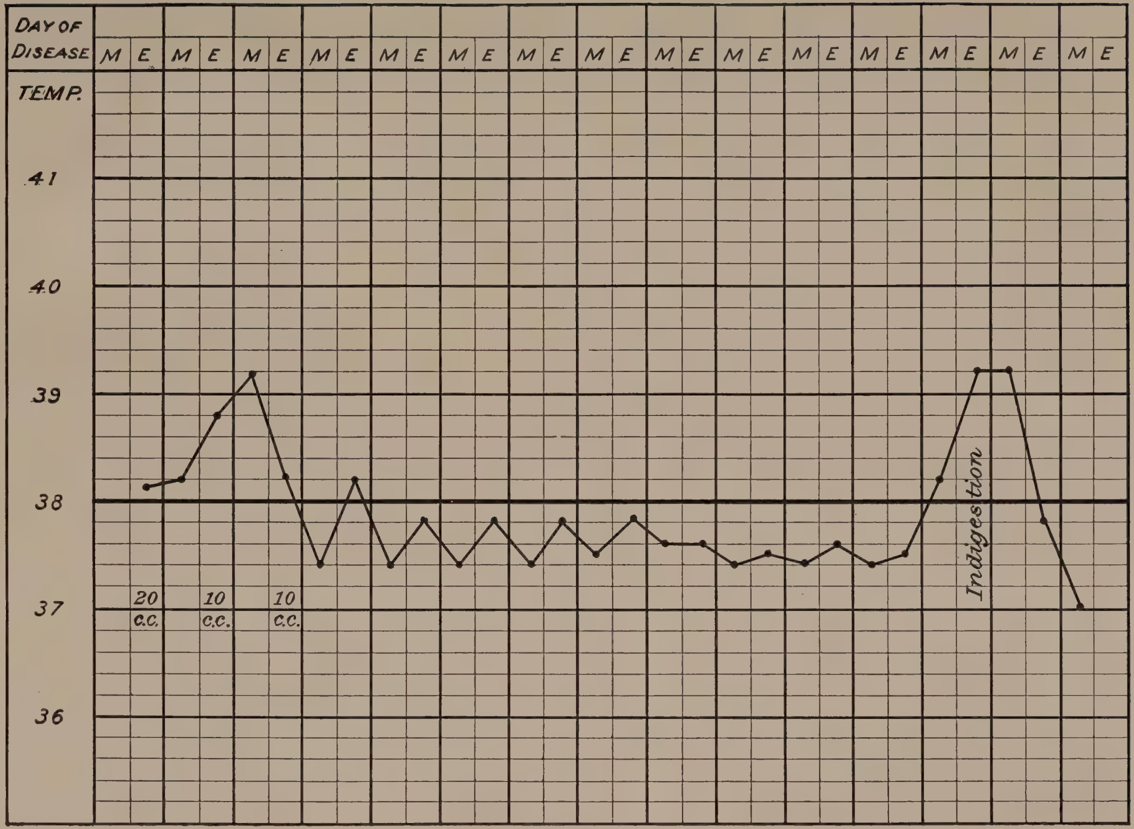
CASE II. Age 20 months. Faucial diphtheria.



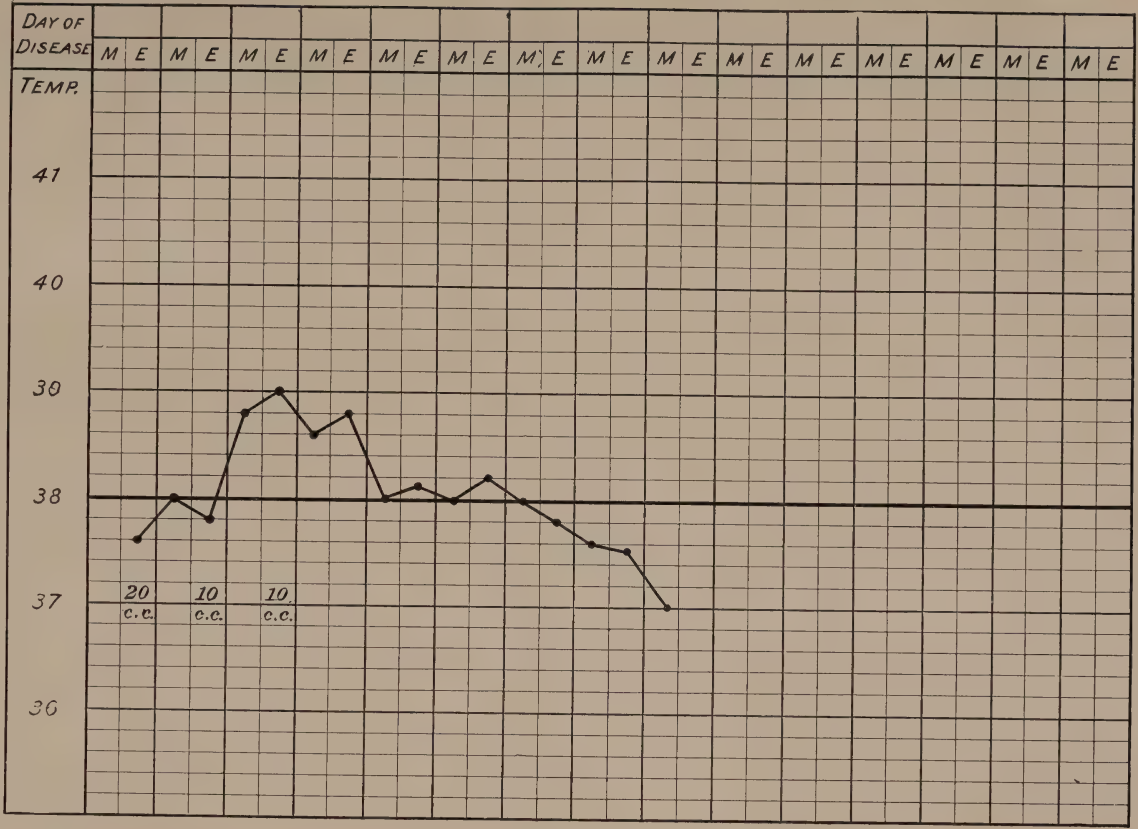
CASE III. Age 4 years. Faucial diphtheria.



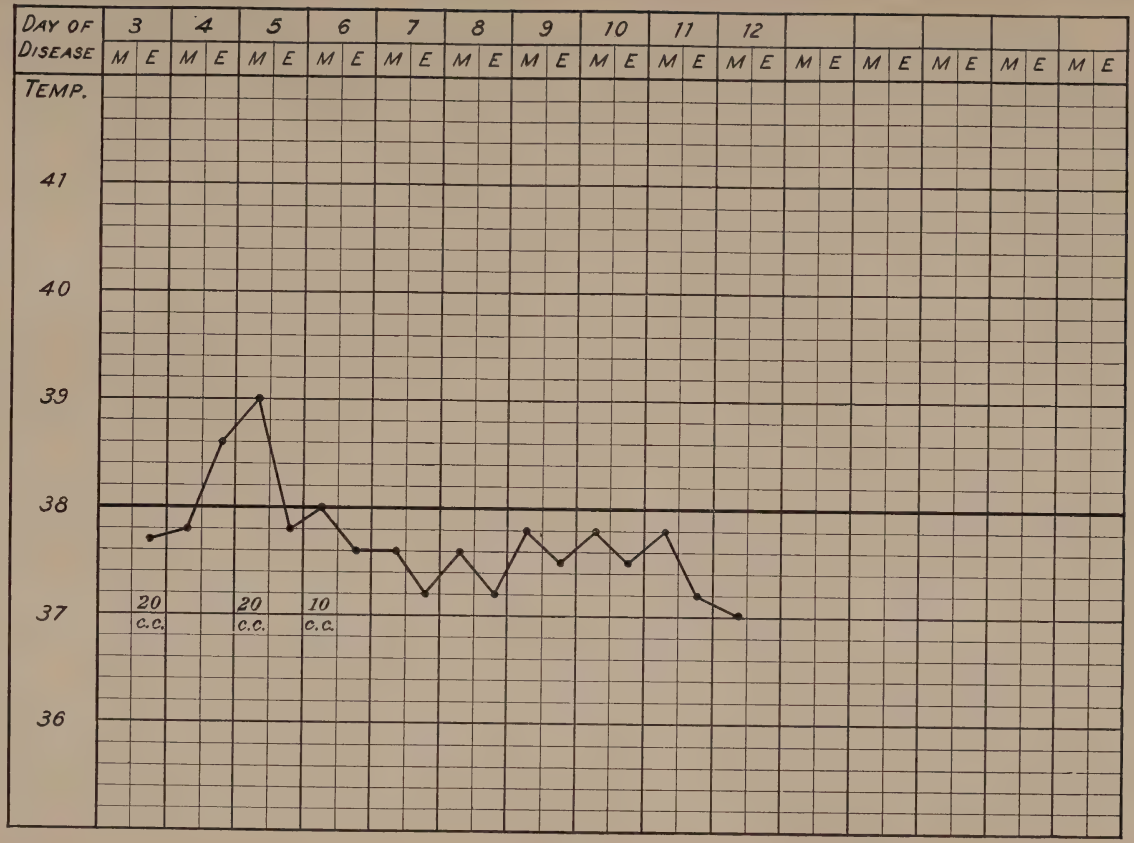
CASE IV. Age 5 years. Faucial diphtheria.



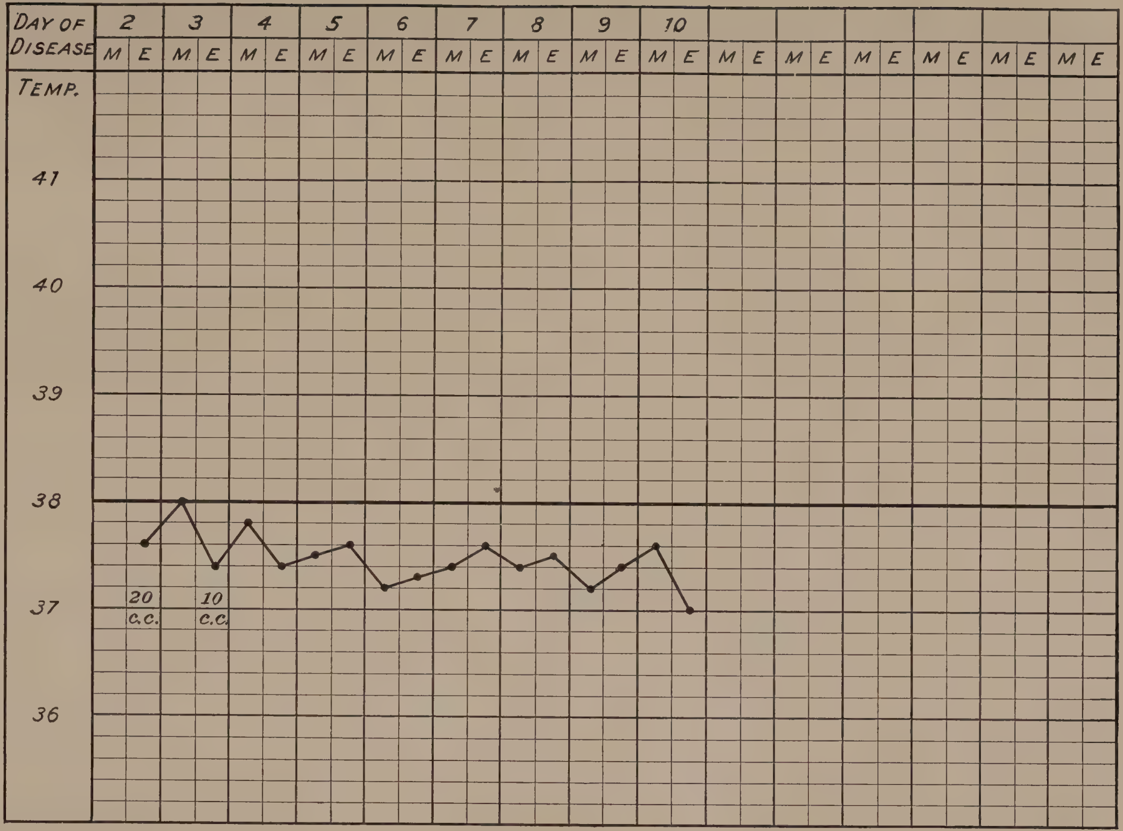
CASE V. Age 3 years. Faucial and tracheal diphtheria.



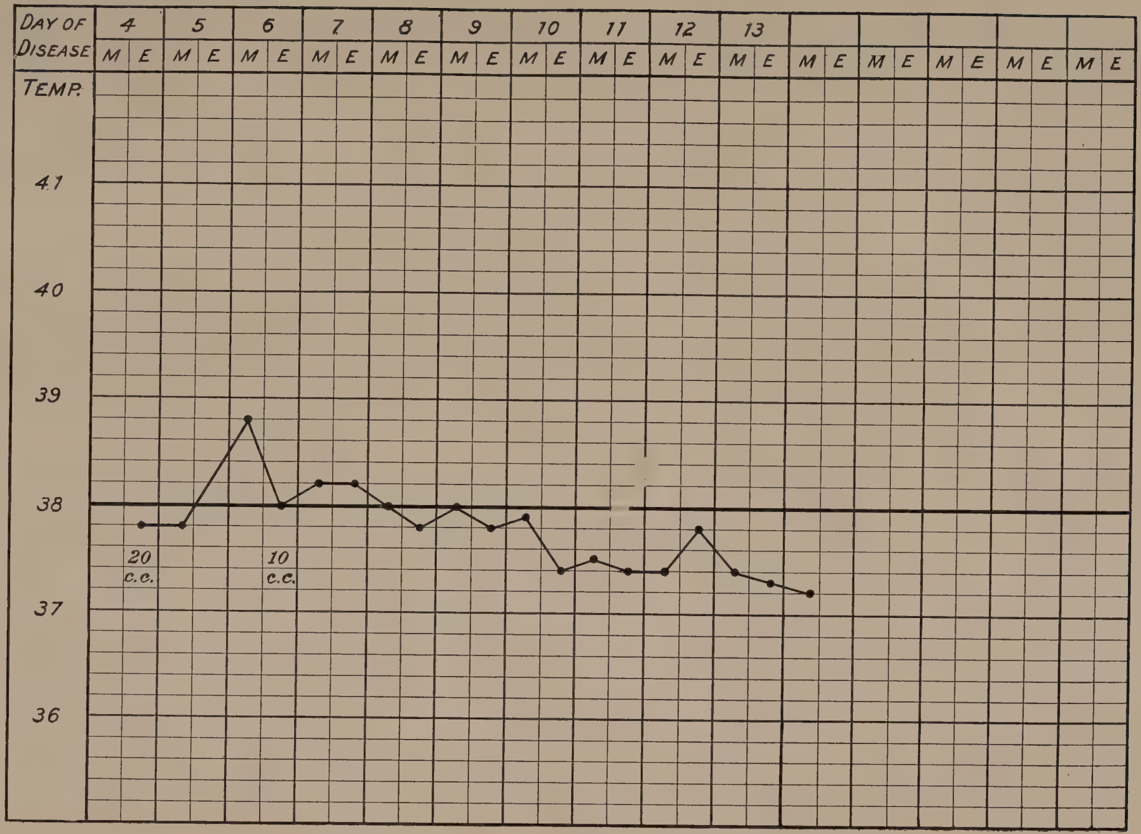
CASE VI. Age 4½ years. Faucial diphtheria.



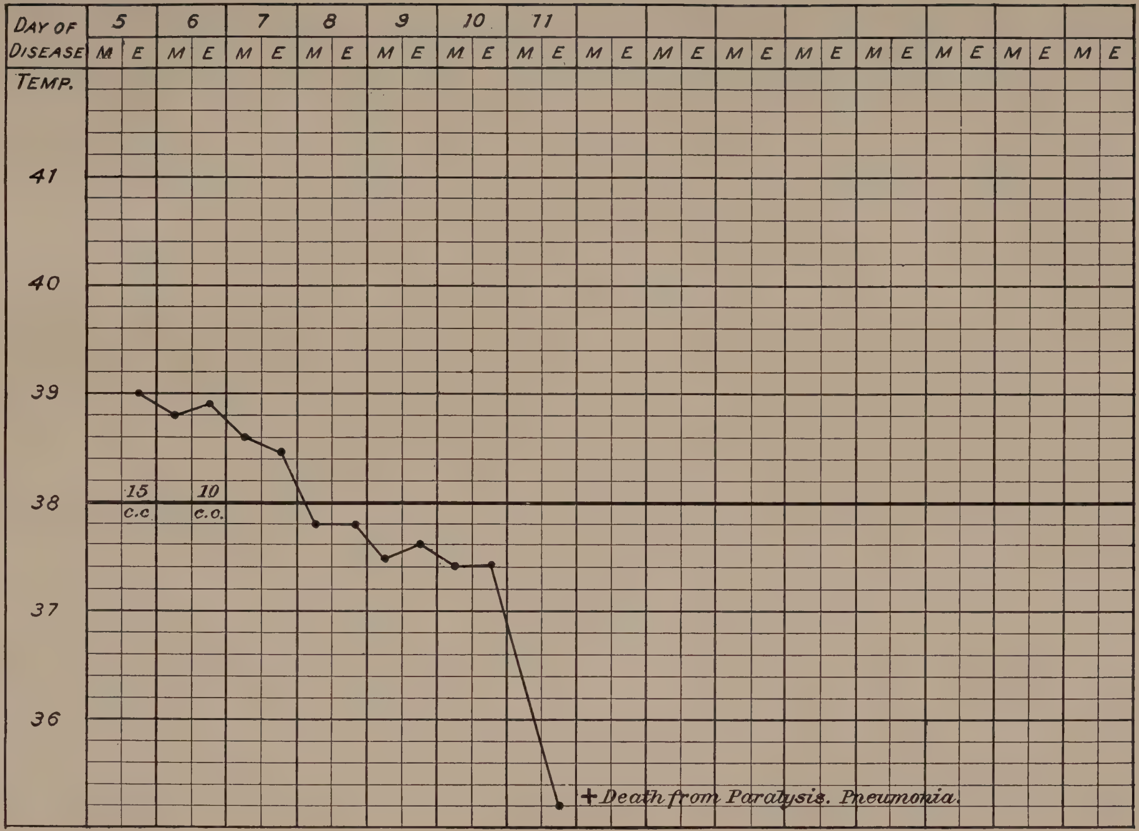
CASE VII. Age 2½ years. Faucial diphtheria.



CASE VIII. Age 5 years. Faucial diphtheria.



CASE IX. Age 2½ years. Faucial diphtheria.



CASE X. Age 18 months. Faucial and tracheal diphtheria, associated with streptococcus and straphyloccus.

no question raised against the diagnosis of every case, for nothing is called diphtheria unless the Klebs-Loeffler bacillus is found. Not sufficient importance so far has been attached to those cases of diphtheria wherein there is a mixed infection, the treatment of all forms being about the same. In saying this I do not wish to convey the idea that all cases are given one and the same dosage, but that the antitoxin is administered in such quantity as is indicated by the symptoms of the case.

The death rate is slightly lower than the figures of the Paris hospitals—cases as published by Katz. The mortality was 16.5 per cent. This has been still further reduced in the cases treated from August 1 until now, it being about 14 per cent. I have taken pains to inquire the reason of the apparent difference in the statistics of Roux and of these, and have, I believe, found a satisfactory solution.

In the first place, the patients, as a rule, are sent to the hospital sooner; the treatment, therefore, is commenced earlier. The next and of equal importance is that the little patients receive here better care than is accorded them in like institutions in Paris. I must state here in justice to Professor Roux and Dr. Martin that they are in no way responsible for the care of the diphtheria patients. This is vested in an entirely separate and distinct body; their control of the cases is limited to the antitoxin treatment only. I know from both that they would have it otherwise if it were in their power. Now, since they have revolutionized the treatment, it is quite certain they will do so. The care of the patients is excellent here, and could hardly be improved upon for this class of cases. They are comfortable and well looked after by a corps of trained assistants and nurses. These two features are responsible for the better statistics. The antitoxin has been used in this hospital since June last, the first being obtained from Dr. Aronson, of Schering & Co., and has been continued by Behring's antitoxin during the summer. For about six weeks none of the cases were given the remedy; the supply was well nigh exhausted, some of the horses under the process of immunization having died and the finances of the hospital being in such a state that the antitoxin could not be purchased. The treatment, therefore, was from necessity interrupted.

I have referred to the general treatment of the patients, and it might be well to state here in a general way what it is and how carried out.

The pavilion for diphtheria is well arranged for the treatment of infectious diseases. The general ward features are wanting. There are instead quite a number of rooms of various sizes, in order to carry out a more complete system of segregation or of isolation, according to the character and gravity of the malady. The cases are classified according to the gravity of the disease; a malignant case is invariably isolated. There is also provision made for the care and treatment of diphtheria associated with the exanthems. So perfect is the system that it is of rare occurrence to have an outbreak in the ward from these latter diseases. The convalescents (save those from eruptive diseases) are kept together in a large ward. A liberal regimen of diet is prescribed and given to every case according to its requirements.

Local applications to the affected parts are still used, but only those agents which have the least irritating effect upon the mucous membrane are now used. Strong solutions of mercuric bichloride, carbolic acid, and the like, have been abandoned. This is especially insisted upon in cases where tracheotomy has been performed. In these cases (tracheotomies) Professor Baginsky thinks that moistened air is essential, not only for the comfort of the patient, but is of great value as a medicament. Facilities are at hand in every room to supply the steam spray with or without these other agents. Tracheotomy is fast becoming a rarity, intubation taking its place in the majority of the cases where tracheotomy was formerly indicated.

The surgical treatment of the tracheotomy cases also deserves mention. Great care is exercised to keep not only the wound but the mucous membrane of the mouth and nose as free as possible from pyogenic infection. Experience has taught them that the subsequent infection by pus micro-organisms is a serious complication.

The method of administering the serum does not differ from an ordinary hypodermatic injection. It is given by means of a large syringe (holding 10 c. c.) on the outer aspect of the thigh, the skin at the site of the injection having been previously disinfected. After the injection the point of puncture is closed with iodoformized collodion The amount injected, of course, depends upon the body weight, on the gravity of the disease, the pulse, respiration, and temperature being also valuable guides. The dosage is 10 c. c., only one-half the quantity as used by Roux. Behring's antitoxin is put on the market in three strengths, graduated upon a scale of immunity units. Aronson's (Schering & Co.) serum is supplied in one strength, which is claimed by Aronson to be stronger by seven times than Behring's serum known as "No. 1."

Behring has demonstrated that when this antitoxin is present in the blood of an animal in a certain proportion it will be immune to a virulent culture of the bacillus diphtheriæ. Thus a guinea pig having $\frac{1}{20}$ c. c. to the 500 grams will be immune. The antitoxin of Behring is put up in three strengths, 1°, 1 to 600; 2°, 1 to 1,000; and 3°, 1 to 1,500—i. e., the first strength has 60 immunizing units to each c. c., the second has 100 immunizing units, and the third 150 to each c. c. The antitoxin which Aronson has made is only one strength, which has, judging from its effects, the same potential unit as Behring's No. 2 (1 to 1,000).

The above strengths or immunity units are taken as a guide for administration. For instance, a healthy child of medium size is rendered immune by 10 c. c. of Behring's antitoxin, No. 1 (1 to 600), only 5 c. c. of Aronson's antitoxin. For cases of diphtheria the full dose of Behring's No. 2 (1 to 1,000), or that of Aronson, is given. If the child is large, weighing as much as 40 kilos, the quantity of either is proportionally increased. In very grave cases the initial dose should be large—frequently 30 c. c. is given and repeated at short intervals.

So far not much importance has been attached to the mixed infection; diphtheria with streptococci or staphylococci, or both, the symptoms in general being taken as a guide for the character of the treatment. While the majority of the cases coming under my observation were treated with Behring's antitoxin, a considerable number were also treated with Aronson's antitoxin, sufficient in number for comparison. The results, clinically, were, so far as I could see, identical; the class of cases, their gravity, dosage, general medication, etc., were in all respects similar.

I have neglected to make mention of the fact that Behring's serum No. 1 (1 to 600) is primarily intended by him to be used for immunization. This does not preclude its use for treating cases of the disease, only that a quantity must be used which equals in immunizing units that of the stronger—that is to say, one must use of No. 1 (1 to 600) 16.6 c. c to correspond in strength to the No. 2 (1 to 1,000). I can not see the utility in these three strengths as advocated by Behring, when his No. 2 answers every requirement, and when, by increasing or diminishing the dosage, the same results can be obtained, which is a far simpler procedure for the practitioner to follow than to remember all the details concerning the strength, dosage, indications, etc., for each strength of antitoxin. Behring, no doubt, is quite right, from a scientific point of view; but is it a practical one? I like the method indicated by Roux much better than that of the German school, because of its simplicity and directness. The treatment of diphtheria with antitoxin has now been practiced here for over five months, excepting the few weeks when the antitoxin could not be had.

From the very commencement these results have been as remarkable as I have before mentioned about the treatment in Paris; from month to month the mortality has been growing less and less. The same story can be repeated with reference to the tracheotomies, the whole offering an array of facts which are to me indisputable. To emphasize more forcibly than I could do otherwise, I wish to refer to the time, during August and a part of September, when the treatment was suspended. During these six weeks it became necessary to perform 37 tracheotomies, with a result of 5 recoveries and 32 deaths. The mortality was so great that Professor Baginsky made an appeal to the public through the daily press for sufficient money to purchase the antitoxin. On recommencement of the treatment the same results were obtained as before, and during the ensuing six weeks there were only 8 tracheotomies, with 4 deaths. The results speak for themselves. Professor Baginsky thinks that if the cases could be seen during the first forty-eight hours of the attack, seldom, if ever, would recourse be had to tracheotomy, and the greater number, if not all, might be saved.

Through the kindness of Professors Koch and Ehrlich I was accorded the full privileges of the Institute for Infectious Diseases and of the hospital wards under their direction, where abundant opportunities were given me to observe their laboratory work, as well as the cases of diphtheria under treatment with the antitoxin. At present Drs. Ehrlich and Wasserman are pursuing their investigations on the subject of the toxins and antitoxins, making therein a full and exhaustive inquiry. Here I witnessed their methods of preparing the toxins for immunization of animals. These methods are identical with those of Behring, both in the growth of the cultures and their subsequent treatment. A number of Florentine flasks are half filled with alkaline peptone bouillon and then sterilized. Soon thereafter they are inoculated with a fresh virulent culture of the bacillus diphtheriæ, and then placed in the thermostat and kept at a temperature of 37° C., and after about three weeks the cultures are killed by the addition of iodine trichloride or by carbolic acid. After standing from twelve to eighteen hours the toxin is tested as to its strength. Several guinea pigs of about 500 grams weight are given doses of this toxin, commencing with $\frac{1}{10}$ c. c. and increasing to $\frac{5}{10}$ c. c. If none of the doses of the toxin kill the animal within thirty-six hours, they are discarded and other flasks tried until one is found having the desired strength.

It is a curious fact, which I have noticed, that there is such a variability of the cultures in the quantity of the toxins. Ehrlich informed me that it was frequently the case that out of a dozen flasks of bouillon cultures grown under identical conditions he would find only one possessing the requisite strength. So far this variability has not been accounted for.

The immunization of animals is accomplished in the same manner as in Paris, commencing with a small dose ($\frac{1}{2}$ c. c.) and gradually increasing until a tolerance for large doses is established. From time to time a small quantity of blood is withdrawn, the serum collected and tested for the antitoxin. It requires from five to seven months to immune a horse after this manner—much longer than is taken by Roux. A horse is subcutaneously injected with the toxins containing the dead bacilli. This method is, in my opinion, open to serious objections, for sometimes an abscess is caused at the point of the injection. To have this accident supervene stops for a considerable time the process of immunization and renders it very awkward if you are in a hurry to produce the antitoxin. As the method of filtering the cultures through unglazed porcelain appears to do away with these objections, I am at a loss to understand why it is not practiced here as in Paris.

Aside from the immunization of horses and goats for the antitoxin, Ehrlich and Wasserman are still continuing their experiments in immunization of cows, with special reference to the antitoxins given off in the milk.

The same results have been obtained here with regard to the antitoxin in the milk and blood as stated by Roux. It is quite difficult to bring about a tolerance to the toxins in the cow, and even when this is established the serum is quite weak in antitoxic properties.

It has also been demonstrated here and in Paris that the stronger antitoxin of Behring and of Roux, 1 to 1,500 and 1 to 100,000, respectively, are very difficult to obtain. It requires a much longer time to immunize the animal—usually not under eight or nine months—and not only is it tedious, but attended with risk. There is a certain limit of tolerance of the horse to the toxins, just as is shown in the guinea pig or goat to the cholera spirillum. In these latter a certain tolerance can be established and maintained for a considerable period, whereas if attempts be made to go beyond this the animals succumb; that is to say, you break down the barriers which you have with great difficulty erected, and disaster results.

Professor Roux stated to me that a serum could be procured from a horse in two and a half months having all the properties of a stronger serum, which, even if the dose is larger, should be taken into consideration at a time when it might be desirable to supply all who require it. It was true that a stronger serum could be prepared, but the time required is at least twice as long, not taking into consideration the fact that in doing so you might kill the horse. The importance of supplying a serum which will cure diphtheria is paramount; the quicker this is done the more lives will be saved. A criticism of this character may be made against the time it requires the Germans to produce the serum, but the fiat has gone forth that the serum shall be of 10 c. c. doses, and thus it is so. When a horse has been brought under the influence sufficiently, the blood is withdrawn from the jugular vein by means of a special trocar and canula and collected in sterilized jars. When the serum separates from the clots it is pipetted off and transferred to sterilized flasks. A small amount of chloroform water is added to prevent deterioration as well as decomposition. It is then filtered through an unglazed porcelain filter and transferred to the 10 c. c. flasks, when it is ready for distribution. Full directions for the administration accompany each flask.

Diphtheria is treated in the annex to the institute—the Hospital for Infectious Diseases. Here two wards have been set apart for this purpose. The cases under treatment are under the direction and supervision of Professors Koch, Brieger, and Erlich. Dr. Kossel, the efficient and obliging assistant, has charge of the cases and makes all the injections. On admission of the patient a careful physical examination is made, supplemented, when possible, with a direct microscopical examination from the exudate, if present, or from the secretions. The main reliance, however, is placed upon the culture method and subsequent examination of the colonies of bacteria for the bacillus diphtheriæ. I was surprised to see that these examinations were made by the old plate method, using ordinary peptone agar instead of the blood serum. "Plates" of agar are poured in sterilized Petri dishes, and then the surface gently streaked over with the platinum or spatula needle, which has been brought in contact with the suspected exudate or the secretions. In from eighteen to twenty-four hours the colonies develop sufficiently to make the diagnosis certain. The method is one which gives good results, but is much slower and far more tedious than the use of the blood serum.

During my two weeks' stay it was my good fortune to see thirty cures. Just before my arrival a change had been made in the Chanté Hospital, which has also a service for infectious diseases. On account of certain repairs to the lazaretto of this hospital, all these cases were for the time being sent over to Professor Koch. The condition of the patients on their admission compared favorably with those seen in the service of Professor Baginsky. The treatment here differed in some respects from that followed by Baginsky. So far as the hygienic conditions were concerned, there was no difference. The difference lay in the therapeusis. Aside from a proper regimen and good nursing, no topical applications were made to the throat, nor was there any attempt at internal medication, the antitoxin of Behring being their main reliance. It was the desire of Koch as well as his colleagues to make a scientific test of the remedy to determine its actual value in these cases without possibility of error. The cures here are classified according to the following: Diphtheria (pure), first to fourth day of duration; diphtheria with toxæmia; diphtheria (mixed infection) with streptococci and staphylococci.

The little patient on admission is given the same careful physical examination, and whenever it is possible a diagnosis is attempted by a direct examination. If the result is in any way unsatisfactory, agar plate cultures are made from the exudate or secretions, the usual methods being brought into requisition. In the meantime a dose of the antitoxin serum is immediately given, the quantity depending upon the size of the child and the clinical appearances, usually a large dose, not less than 10 c. c. to 16 kilos weight, or even this quantity to a smaller should the constitutional symptoms appear to warrant it. The subsequent treatment of the case will largely depend upon the result of the bacteriological examination. The classification above referred to has been in practice for a short time only, beginning, I think, in August, soon after Roux's announcement of the importance of the recognition of the double infection. As these cases require a much more vigorous treatment than if they were pure diphtheria, it is now accepted here that Dr. Roux's conclusions are correct. The treatment now practiced is on the lines as laid down by him. Since the adoption of his methods of treatment there has been quite a different result than formerly; there are less pulmonary complications and more of the patients get well. Further than this, there is a shorter convalescence.

The method of administering the serum is the same as that practiced by Baginsky, the site selected for the injection being the outer portion of the thigh. It is given by means of the Koch syringe, having a large canula. The injections are made under strict aseptic precautions, and on the withdrawal of the canula the puncture is closed by iodoformized collodion. The antitoxin now used in the pavilions is what is known as No. 2, 10 c. c., having a strength of 1 to 1,000. Seldom, if ever, the weaker serum is used, and if used it is for immunization only. The strongest, 1 to 1,500, is used only in the very severe cases, especially those in which the disease has existed for several days, toxæmia supervening, or in those of double infection. In both these, and especially the latter, it is necessary that the system be rapidly brought under the influence of the antitoxin, to neutralize as quickly as possible the toxins in the system, in order to allow nature to assert itself and reestablish an equilibrium. Kossel has observed this in quite a number of cases where there was double infection, especially of diphtheria and streptococci. If the toxins of diphtheria are quickly neutralized, nature is able to assert itself and throw off the effects of the other organism. The normal or remaining resistance may be sufficient for one of those poisons, but not for both. The dosage depends largely upon the case. In some, one dose will be found sufficient to bring about a recovery. These cases are those which have been affected for a short time, under four days. When the disease has existed longer, or is one of those very malignant cases from the outset, larger and more frequent doses must be given if it is hoped to accomplish anything.

About twelve hours after giving an injection of the antitoxin there is a rise of about a degree in the body temperature; this is known as the reactionary fever. In nearly all the cases which have come under my observation there is this rise in the temperature. It may be taken as a good guide to the character of the malady. In cases of simple angina it also occurs, but is not the rule. This reactionary temperature is observed in all three sets of cases treated by Roux's, Aronson's, and Behring's serum, respectively. The temperature charts sent with my previous letter will demonstrate this point.

The effect of the antitoxin upon the false membrane of diphtheria is quite characteristic. As a rule, on the third or fourth, and in many as early as the second day of treatment, the œdema and redness around the false membrane disappear, the membrane itself becomes softened at its periphery, becoming in a short time either detached or absorbed. The false membrane, when caused by the double infection, disappears much more slowly. Those caused by streptococci are not influenced in any appreciable way by the antitoxin. Complications such as bronchitis, pneumonia, and abscesses are infrequent—a marked contrast with former years.

Intubation is practiced here the same as in Baginsky's hospital. A few cases were thus operated upon during my stay. Three tracheotomies (one false, not diphtheria) were all I saw, these latter becoming less frequent as the treatment progresses. The mortality from all classes of cases since August to the present time (November 6) was slightly above 16 per cent. The larger number of the casualties were from those cases in which the disease had existed for several days, death resulting from toxæmia or pneumonia.

In those cases which were sent into the hospital during the first days of the attack (not later than the fourth day) the mortality was slightly over 12 per cent. It is believed by Kossel and others that even a better showing than this can be made if the cases can be under treatment earlier than the fourth day.

Behring's antitoxin is made in Hoest on the Main by the large aniline color works of that place. The work is under the direction of Dr. H. Knorr, the son of the discoverer of antipyrin. At this time the firm has thirty-five horses immuned, and is sending out considerable quantities of the serum. It was my intention to go to Hoest on the Main, but when I found that the process of the preparation was the same here as there, I decided to see as much of the clinical side as possible, and so remained here.

Through the courtesy of Dr. Ditmar, the director of the Schering Chemical Factory, I was also accorded the privilege of visiting their place to observe the methods employed by Dr. Aronson in obtaining the antitoxin, some of which I had seen used in the hospital wards.

At one of their factories near Berlin the firm has a well-equipped bacteriological laboratory for producing the toxins and preparing the serum. Near by they have well-arranged stables and paddocks for the animals. At this time they have 70 horses, 30 sheep, and a number of goats in various stages of treatment. At first I was told that as a trial venture only a few horses were immunized, and from these considerable antitoxin was obtained. During the summer some of these died, and the work was interrupted. They hoped that they would be able to supply the serum on and after December 1.

The work as carried out by Dr. Aronson and his assistants compares favorably with any which I have seen in Berlin. He has all the necessary appliances in his laboratory, possessing the requisite knowledge and training in this special branch. Being provided with the facilities for good work, I see no reason why he can not produce as good serum as any others here. In some of the technique I am inclined to believe it is better than that practiced by those in the institute, i. e., in the preparation of the serum. Aronson adds a small quantity of trikresol to the serum—0.4 to 0.6 per cent. This causes a slight flocculent precipitate, which is filtered off, and then the serum is passed through an unglazed porcelain filter, when it is transferred into small sterilized bottles and sent out for use.

He has also discovered how the antitoxin can be precipitated from the serum and preserved indefinitely (?). A saturated solution of aluminum sulphate throws down a large precipitate; this is separated and dissolved out from the alumina by the addition of a 0.1-per-cent solution of soda; it is then dried at ordinary temperatures in vacuo. When prepared in this manner it can, it is claimed, be preserved in hot climates without deterioration. There is the same drawback as with the inspissated serum—it causes a considerable amount of irritation.

The time required for immunizing the animals is the same as by Behring.

Aronson has not attempted to make more than one strength of the antitoxin. That which I saw used in the hospital had the same effects as Behring's (1 to 1000.) He (Aronson) claims to produce a stronger serum than Behring's. This I can not confirm.

I have just learned that the friends and supporters of Behring have resented the intrusion of Schering & Co. upon the field, and not a few are trying to throw discredit upon the latter by statements that the serum had not the same unit of strength as had been prescribed by Behring.

On Saturday last (November 4) Professor Koch convened a meeting of the Prussian board of health for the purpose of determining what action was necessary to be taken by that body in regard to the control or supervision of the use of the antitoxin. I had been told by Professor Koch a few days before this that he thought that there should be some Government supervision of the serum, so that the serum could always be relied upon. If there was no such supervision it would not be long before spurious articles would be put on the market, and not only a good remedy would be brought into disrepute, but that lives would be sacrificed when they might be saved. It was decided at the meeting of the board (Behring being present) that all serum intended for use in Prussia should be inspected at the institute, and tested for its purity and strength before it would be allowed to be used. This step, I learn, was satisfactory to all the parties concerned, and will be the means of insuring a good article of standard strength at all times for Prussia.

In this connection I would like to call attention to what will evidently ensue in our country. Many persons will, during the ensuing year, commence to prepare the serum as a business enterprise, and there will, without doubt, be many worthless articles called antitoxin thrown upon the market. All the serum intended for sale should be made or tested by competent persons. The testing, in fact, should be done by disinterested parties. The danger with us is perhaps greater than could exist here under any circumstances. An unfortunate wrangle has sprung up between Professor Virchow and Dr. Behring over a statement made by the former that the efficacy of the so-called antitoxin in diphtheria was still in doubt, and he for one could not accept all that was said in its favor. This angered Dr. Behring to such an extent that he made a very caustic rejoinder. This aroused Professor Virchow's friends, who came to the rescue, as well as those of Behring, and no little ill feeling has arisen between the two factions. The general sentiment among those who really know anything about the antitoxin is now, however, one of kindly feeling for the distinguished old man who has deservedly won so many laurels, too many, in fact, as they have now become a burden.

An eminent professor, speaking of the criticisms which some were making against this new remedy, attributed the cause of this feeling to tuberculin, and expressed it in the following: "Oh! this unfortunate tuberculin! Not only has it poisoned men's bodies but also their minds! Would they only come and see, and not criticise a remedy before they know." I am fully satisfied in my own mind that if those who doubt the efficacy of the remedy, as I first did, would go and not only see but carefully examine the cases and study them, there would be no longer a question as to its value.

The antitoxin will never work miracles. It has its limit, like any other agent, and, like a perfect piece of machinery, will not accomplish the full result unless directed by a skilled hand. Some persons affected with this dread disease will succumb, it matters not how soon we apply the remedy. The majority will, however, I am sure, recover if the antitoxin is given early and properly.

In closing this letter I will state that, so far as my clinical observation goes, the antitoxin prepared by Roux and Martin is the same in its effect as that of Behring and Aronson, and compares favorably with both. The remedy should be satisfactory to the medical profession. It will, of course, fall short of fulfilling all the requirements demanded by the laity. It is to be hoped that soon every State and municipality will take the proper steps to provide facilities to supply the remedy to the people, and by a judicious and timely use be able to stamp out this terrible scourge, which carries off so many thousands, rendering desolate so many homes.

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The subsequent report which I submit will be more of a report of progress than one setting forth the status of completed work.

Previous to my return, while at the Pasteur Institute, I sent to you a small quantity of the diphtheria toxins, for the purpose of commencing the immunization of horses for the diphtheria antitoxin. This was commenced November 9 by P. A. Surg. H. D. Geddings, and continued until my arrival, December 5.

Appreciating the great importance of the new remedy, I obtained authority from you early in October to purchase the apparatus required for its production, and had it sent on in advance, in order that no time would be lost in putting the scheme into effect. It was not the intention to attempt its wholesale manufacture, nor was a Government control contemplated. It was for two purposes only, viz, to supply the Marine-Hospital Service with a supply of diphtheria antitoxin of standard strength, and for use in demonstrating the methods for its production, etc., to the accredited representatives of State and local boards who might desire such instruction.

As early as December 10 a considerable quantity of toxins of diphtheria of proper strength had been produced, sufficient to continue the process of immunization. During the second week of January the blood of the horse showed an antitoxic potency of slightly over 1:60,000, and on the 1st of February (slightly under four weeks) it was found to to be of standard strength.

After thoroughly testing it, the first lot of antitoxin was prepared and was sent out to the several marine hospitals.

Fearing lest some accident happen to the one horse under treatment, it was deemed prudent to commence the immunization of another; so, in December, a second horse was purchased and the treatment begun.

The method pursued in the immunization has been, in the main, the one practiced by Roux. This has been modified in several minor particulars, as we grew in knowledge gained by a longer experience.

In order to set forth briefly these few modifications, which we think are not without interest to those who are engaged in the same line of work, they will be considered under the following heads:

Toxins.—At first the method of Roux was strictly followed. Fernbach flasks, containing a definite quantity of a 1-per-cent peptone bouillon, were inoculated with a culture of bacillus diphtheria and grown at a temperature of 36° C. A current of moist air was kept passing through each flask. After from four to six weeks the cultures were examined for the toxins.

The bacilli were separated from the liquid by means of a special Pasteur-Chamberland filter, the liquid being received in sterile containers. To ascertain if the filtration was successful, a quantity of the filtered liquid was carried over to bouillon tubes and tested for the bacilli by culture.

Determining the strength was done in the usual manner—by inoculating a series of guinea pigs with different quantities of the toxins and observing the effects. When the minimum lethal dose was established of any one toxin, it was labeled and placed in the ice box for future use. At first any toxin which showed a strength of 3/10 was kept for inoculation purposes, but now, since it has become quite easy to produce stronger toxins, only those which show a standard strength of 0.1 are used.

At first considerable difficulty was experienced in obtaining constant results in growing the cultures for the toxins. The results were variable. The toxins in one flask might be very strong, whereas others, grown under the same conditions and made from the same stock of bouillon, were far below the standard. After one or two trials with this method, I commenced a series of observations on the production of the toxins, and have continued them up to the present time. I have about concluded that the method as advocated by Fernbach is perhaps the best, as it yields toxins of a more constant strength than when the cultures are grown under the ordinary conditions.

The three essential features for toxins appear to be these: First, the culture should be made on a large surface; second, the air should be changed by a current passing over the culture; third, the composition of the media (a 3 to 4 per cent peptone bouillon) titrated to a standard degree for alkalies and chlorides has given the best results.

A culture media of the above composition has been used in other ways for growing the cultures, but so far it has not yielded as constant a result as by Roux's method.

The quantity of the toxins administered at one time should always refer to the number of toxin units, i. e., the number of minimum lethal doses, and not the number of cubic centimeters.

The injections for immunizing the horse should be made with some care, especially when large quantities are to be given; they should be rather deep into the tissues, and then subcutaneous. Not more than 100 c. c. should be injected at one place; 50 c. c. is still better. The toxins should be injected very slowly. I have been using a gravity apparatus for the purpose, and have almost entirely discarded the syringe. By gravity one can obtain any desired pressure and control the velocity to a nicety. Since adopting this method fewer abscesses have been caused than when the syringe was used.

The time for producing the requisite degree of immunity is variable. In some horses an antitoxin of one-half strength, 1:50,000, has been obtained in about seventy days, usually three months; the full strength from four to eight months. The process is exceedingly slow at best. Some horses respond very readily, while in others the reaction is slight or is absent. It is quite probable that one of the horses under treatment could have been immunized several weeks sooner than was done, but as I did not wish to repeat the experience of some others in killing the horse, I used a little more time.

I have adopted the formula of Roux in determining the strength of the antitoxin. I have done this because it will be more easily comprehended by the profession when reference is made to the immunizing strength per body weight rather than the "normal" and "immunizing units."

To all intents and purposes the standards of strength are about the same; thus, 1 c. c. of 1:50,000 strength (Roux) corresponds to 50 immunizing units (Behring), and 1:100,000 strength equals 1,000 units.

The following circular regarding diphtheria and the directions for the administration of diphtheria antitoxin has been sent out with each dose of antitoxin:

Directions for the administration of diphtheria antitoxin.

UNITED STATES MARINE-HOSPITAL SERVICE,
HYGIENIC LABORATORY,
Washington, D. C., March 22, 1895.

DIPHTHERIA.

It is impossible to clinically differentiate many cases of diphtheria from other acute inflammations of the upper air passages. Diphtheria does not in all cases produce an exudate. An exudate does not always mean diphtheria. Diphtheria frequently simulates follicular tonsilitis, pharyngitis, acute and subacute rhinitis—especially acute follicular tonsilitis. On the other hand, inflammations of the upper air passages, which are accompanied with an exudate, may be caused by other micro-organisms than the bacillus diphtheriæ, viz, the pus organisms (streptococcus pyogenes; the staphylococci pyogenes aureus and albus), the pneumococcus, and the bacillus of Friedlander.

In the majority of cases a bacteriological examination is necessary to determine the character of the disease, requiring from twelve to eighteen hours.

METHOD OF MAKING A CULTURE IN CASE OF SUSPECTED DIPHTHERIA.

The material for making the culture should be taken from the throat before any germicide has been applied locally, or after the expiration of two hours if such local application has been made.

Two test tubes should be provided, one containing a quantity of coagulated blood serum; the other a small cotton swab on a steel wire—all properly sterilized.

The patient should be placed in as good a light as possible, the tongue depressed sufficiently to bring the pharynx into view. The swab should then be passed into the pharynx and the exudate rubbed gently, a slight rotary motion being given to the swab. If there is no exudate visible, pass the swab well into the pharynx, touching its posterior wall and pillars of the fauces. Without laying the swab down, remove the cotton plug from the tube containing the coagulated blood serum, insert the swab, and rub that portion of it which has touched the exudate or contains the secretions gently and thoroughly over the surface of the blood serum, making at least three or four strokes. Due care should be taken not to break the surface of the blood serum. Remove the swab and return the cotton plug. Without laying the swab down, replace it in its container; here it can be kept for further cultures or direct examination.

The inoculated tube should be placed in a thermostat and be kept at a temperature from 36.5° to 38° C., from twelve to eighteen hours. At the expiration of this time the colonies will have developed sufficiently for the examination.

Cover-slip preparations should then be made therefrom and examined with the microscope.

If the case is one of diphtheria, cultures should be taken every five or six days after the disappearance of the membrane. This is to determine when the bacillus diphtheriæ disappears. So long as the bacillus diphtheriæ is to be found the case is liable to impart the disease to others. The bacillus may remain for a long time—even weeks—after the patient has apparently convalesced. The same rule and precautions should be exercised in making the later cultures as are recommended for the first.

DIPHTHERIA ANTITOXIN.

The diphtheria antitoxin herewith furnished is prepared from the blood of the horse. It contains 0.4 per cent of trikresol added to it for its preservation, and has been filtered through unglazed porcelain. If kept in a cool place, away from the light, it will maintain its strength unimpaired at least six months. The diphtheria antitoxin is put up in bottles of two sizes, containing 20 c. c. and 10 c. c., respectively. The 20 c. c. size has an immunizing strength of 1 to 50,000; the 10 c. c. size, 1 to 100,000.[1]

INDICATIONS FOR ITS USE.

To obtain the best results the diphtheria antitoxin should be administered in the early stages of the disease—not later than the fourth day—and be given in a full therapeutic dose. The quantity required for an adult is from 20 to 40 c. c. of an immunizing strength of 1 to 50,000, or from 10 to 20 c. c. of an immunizing strength of 1 to 100,000; for a child over 4 years, one-half the quantity required for an adult; for younger children, a quantity proportionately less. Cases of mixed infection (diphtheria and pus organisms) require larger quantities of diphtheria antitoxin, and should be administered at shorter intervals.

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[1] An immunizing strength of 1 to 50,000 means that 1 c. c. of antitoxin will protect 50,000 grams of guinea pig against a lethal dose of toxin, and 1 to 100,000 means that 1 c. c. of the antitoxin will protect 100,000 grams of guinea pig against a lethal dose of toxin.

As a prophylactic, one-half the quantity required in the treatment of diphtheria will usually be sufficient.

INJECTION.

The syringe and needle should be sterilized in boiling water just prior to use. The site for the injection should be selected where the skin is loose. The most suitable is the side just over the costo-chondral articulation, or on the outer side of the thigh. The skin should be thoroughly disinfected by a solution of bichloride of mercury or some other antiseptic, the puncture being closed by freshly bichlorided cotton or iodoform collodion.

A clinical history should be kept of each case, and should embrace the following: (1) The presence or absence of the membrane; if present, its location and extent; (2) the results of the bacteriological examination; (3) the day of the disease on which treatment was commenced; (4) the date of each administration, and the strength and quantity given of the diphtheria antitoxin; (5) the alterations observed in the membrane, the pulse, the temperature, the respiration, and the general condition; time when such alterations occur; (6) the date of tracheotomy or intubation, if required; (7) the date when the bacilli disappear; (8) the date and character of such complications as erythema, joint pains, albuminuria, hæmaturia, paralysis, or pneumonia, also date of post-mortem examination. If a post-mortem is made, special attention should be given to the appearance of the heart and kidneys.

Op. No.... ...., 189..Eq....
DIPHTHERIA ANTITOXIN
10 cubic centimeters.
Immunizing strength 1 to 100,000.
Prepared at the Hygienic Laboratory
U. S. Marine-Hospital Service.

Op. No.... ...., 189..Eq ...
DIPHTHERIA ANTITOXIN
20 cubic centimeters.
Immunizing strength 1 to 50,000.
Prepared at the Hygienic Laboratory
U. S. Marine-Hospital Service.

It is hardly worth while to speak of the indications for its use or the methods of administration. The remedy has long passed its experimental stage even in this country, and the results speak more forcibly of its value than anything I could say. I feel gratified, however, to be in a position to reiterate what I have already said concerning it. It has occurred to me that the remedy has not been used as extensively in our hospitals as it should be on account of the greater proportion of the clientage being adults, and also because the acute inflammations of the nose and throat are not clinically typical of diphtheria. This does not prove that there is not present in many such cases the bacillus diphtheriæ, where simple pharyngitis or tonsilitis is diagnosed. All these cases should be examined bacteriologically on their entrance to hospital to determine the character of the infection.

If it be diphtheria it should then be treated accordingly.

Considerable attention has also been given to preparing the antitoxin by desiccation, either in the form of scales or in powder. In this state it has considerable advantages—it is reduced to about one-eighth its original bulk and is soluble in about one-half the quantity of water. The drying process reduces its strength to a considerable degree. It is claimed that it is in an unalterable state and will keep indefinitely. This, if borne out by experience, is a great advantage. Sufficient time has not yet elapsed to determine whether it is superior to the liquid form.

The greatest objection which can be urged against the liquid serum lies in the bulk to be injected. This can be in a measure overcome by using an antitoxin of a higher potency. Thus, a serum having a strength of 1 to 150,000 would require a dose of about 6 c. c. for the same effect as the present dose of 10 c.c. of a 1 to 100,000 strength. The quantity of a standard dose in the near future will be in all probability less than 10 c. c., now that a sufficient time has elapsed to bring the animals to a high state of immunization. It may be remarked in this connection that this high degree of immunization is very difficult to maintain—much more so than to keep a horse immunized to produce an antitoxin of the ordinary strength.

There are yet many questions regarding the toxins, and the production of antitoxin, still unsolved, and it will require time to define them. It is my intention to submit a report in the near future on these subjects, giving in full the details of the experiments as well as the conclusions.

When it became an assured fact that the first horse had been thoroughly immunized, and would produce a good article of antitoxin, the second horse, which had also reached a point of producing a good antitoxin, was put to another purpose.

In June this horse was inoculated with the toxins of esysipelas. At the same time the immunity to diphtheria was maintained. At the present time the experiment is progressing as well as could be hoped, and it is anticipated soon to have an antitoxin which will be efficacious in the "mixed infections" of diphtheria.

Experiments are also being continued with the nucleins and "protonucleins" with reference to their specific and antagonistic action to diphtheria. No definite opinion can yet be formed, but it seems probable that their action is far inferior to the antitoxin.

As the laboratory work had been so much enlarged, it became necessary to have assistance. In December Passed Assistant Surgeon Rosenau was, by your order, assigned to the laboratory. So far as possible the investigations have been apportioned equally between us, and so arranged that if the case required our work could be interchangeable.

Feeling that our present state of knowledge was not satisfactory with regard to the disease caused by the diplococcus lanciolatus, I was particularly anxious to continue these investigations. This subject has been assigned to Dr. Rosenau, who is making a careful and systematic inquiry into the etiology, pathology, and therapy of acute lobar pneumonia. So far as this inquiry has been conducted it is highly satisfactory. It is expected soon to report upon its serum therapy.

SERUM THERAPY OF VARIOLA.

During December, 1894, and January of this year I commenced an investigation concerning the etiology and pathology of variola, and, taking advantage of the prevalence of smallpox in this city, I made some observations upon the treatment of this disease by the use of the blood serum of vaccinated calves. A preliminary report was made to you on January 15. (Vide abstract of sanitary reports, January 18, 1895.) In order to continue these investigations Congress was asked to appropriate $900 from the epidemic fund to continue them. On April 1 this subject was again taken up and has been under investigation up to the present time.

In August, Passed Assistant Surgeon Rosenau was detailed to Eagle Pass, Tex., where the Marine-Hospital Service had assumed charge of an epidemic of smallpox among negroes who were returning from Mexico. This officer was specially charged with making observations in the treatment of smallpox by the serum of vaccinated animals. The supply of the serum was furnished for the experiments from the laboratory. His reports are to the effect that he had not observed any effect of the serum in preventing or modifying the course of the disease.

As the experiments made upon monkeys show that it does have a modifying effect upon vaccinia, I am inclined to believe that the three days' journey from Washington to Eagle Pass during the intense heat may have had some modifying effect upon the serum and perhaps destroyed its active principles. The subject is still being investigated for the purpose of determining whether this supposition can be confirmed.

The method of producing a pure vaccine is also being studied.

Dr. Eduardo Andrade-Penny, assistant in the laboratory, has made an extensive study of the intestinal bacilli, with special reference to their differentiation. His work is embodied in the following paper:

Acid fuchsin as an agent for the differentiation of bacteria.

[By EDUARDO ANDRADE-PENNY, M. D., assistant in the hygienic laboratory, United States Marine-Hospital Service, Washington, D. C.]

The changes of reaction brought about by different kinds of bacteria in the culture media where they are grown have not been carefully studied. There exists considerable variance of opinion among bacteriologists as to the reactions of the intestinal micro-organisms, more especially the bacillus typhosus and bacillus coli communis. Brieger holds that the bacillus typhosus produces an acid change. Klemensciewicz states that both these produce an acid reaction which is more marked in the bacillus coli. Thoinot and Masselin, on the other hand, say that, according to their experience, coli communis produces first an alkaline reaction, which gradually changes into an acid. Peré, after a careful investigation, states that in peptone bouillon made from meat less than 40 hours old both coli communis and typhosus produce acid which gradually changes to an alkali, the stage of acidity being shorter with typhosus than with coli. These reactions varied according to the time the meat was kept before use. Peré concludes that the different and contrary results of the investigators are due to the influence of the variable composition of the media, and not so much to the micro-organisms in question.

In view of these contradictory statements, and believing that very important and useful data for the differentiation of bacteria and for the complete knowledge of their biological properties could be obtained from the careful study of the reactions they produce in different culture media, I have undertaken a series of experiments. The results obtained deal with those forms of bacilli which are usually found in the intestinal canal, viz, bacillus coli communis, bacillus typhosus, bacillus proteus vulgaris, bacillus acidi lactici, and bacillus lactis aerogenes. The experiments made with the spirilla will be the subject of another communication.

Aqueous solutions of acid fuchsin (Fuchsin S., Grübler) have been found to be excellent indicators for acids and alkalies. Solutions of this aniline dye lose their bright-red color in the presence of alkalies and recover it or become more intensely red when acted upon by acids, either mineral or vegetable. It has been found that 0.01 centigram of caustic potash combines with 0.005 milligram of acid fuchsin and forms a colorless salt, the sensibility of which is that 0.00003 of a gram detects 0.001 of c. c. of pure hydrochloric acid. The intensity of the color assumed by the indicator is directly in relation to the amount of the reagent. Moreover, as far as it has been observed, the addition of acid fuchsin to the culture media has not the slightest influence on the growth of the germs. To 10 c. c. of ordinary bouillon more than 0.5 c. c. of a saturated aqueous solution of acid fuchsin was added without inhibiting the growth. This indicator has the advantage of being readily soluble in water; the solutions are entirely clear and transparent, and do not produce precipitates when the medium is rendered sufficiently alkaline to completely decolorize it. This is quite in contrast with other aniline colors, which have more or less these properties. It is known that Legrain used solutions of ordinary basic fuchsin for the same purpose. This has not in our hands yielded good results, because it is far less sensitive than acid fuchsin; the solutions are cloudy and throw down a brownish-red precipitate in the presence of alkalies, which interferes with the tests.

These tests include many kinds of media, to which has been added the acid fuchsin, viz, ordinary peptone bouillon, beef tea, Dunham's peptone solution, Dunham's peptone solution with glycerin, somatose solution, and somatose solutions with glycerin; also these media, to which agar-agar and gelatin had been added. Of each medium two specimens were prepared, one pink and the other decolorized, the difference being that the pink is exactly neutral in its reaction, while the so-called decolorized is slightly alkaline. The amount of acid fuchsin in both is about the same.

After many trials it was found that the most sensitive of the pink media is one that is exactly neutral and contains acid fuchsin in the proportion of 1 to 25,000 or 1 to 33,000, those decolorized having an alkalinity equal to 0.006 milligram of caustic potash in every 100 c. c., containing acid fuchsin in the proportion of 1 to 33,000.

PREPARATION OF THE MEDIA.

Neutral peptone bouillon is prepared in the usual way and titrated for sodium chloride, so that it contains 0.5 centigram to the liter. This is important, as an increase of the salt proportionally diminishes the growth of the bacteria, and hence interferes with the reaction. After the bouillon is prepared the acid fuchsin in aqueous solution is added, so that the medium contains the fuchsin in the proportion of 1 to 25,000 for the pink or neutral bouillon.

The decolorized or alkaline bouillon is prepared by adding to every 100 c. c. of the neutral medium 0.006 milligram of caustic potash and acid fuchsin in the proportion of 1 to 33,000.

After the addition of the fuchsin the bouillon is boiled for about half an hour and then filtered, put into tubes, each containing 10 c. c., and then sterilized in the usual way. It is observed that on heating the media the color deepens, while on cooling the original color returns, but it is sometimes paler.

Dunham's solution of peptone, with 6 per cent glycerin containing acid fuchsin in the proportion of 1 to 33,000, has been found the best adapted for the differentiation of the intestinal organisms. The decolorized solution is made in the same manner as for the decolorized bouillon. The advantage of this medium over others is that on account of its absence of color it indicates the slightest trace of acid.

Instead of Dunham's peptone solution, somatose has also been employed in the same manner, adding to its solutions the same amount of salt and glycerin. It is not so satisfactory as Dunham's solution, owing to the deep orange tint of the solution, and before the proper color was obtained the amount of acid fuchsin had to be increased so that it contained it in the proportion of 1 to 2,500. Decolorized solutions are prepared in the same manner as others.

Solid media of agar-agar or gelatin are prepared from Dunham's or somatose solutions. The glycerin, however, should not be added until they are neutralized and filtered; otherwise the media may not be clear and transparent. This is especially so with gelatin. The same amounts of acid fuchsin are added to each, and they are neutralized in the usual manner.

The experiments were made with one specimen of bacillus proteus vulgaris, one of bacillus acidi lactici, one of bacillus lactis aerogenes, six different specimens of bacillus typhosus and five of coli communis. The specimens of bacillus typhosus and bacillus coli communis were obtained from different sources, viz, from New York, from the laboratory of the Johns Hopkins University, from the laboratory of the Army Medical Museum, from the Bureau of Animal Industry, and from the hygienic laboratory of the Marine-Hospital Service, another specimen of bacillus typhosus, furnished through the kindness of Dr. Reed, of the Army Medical Museum, and designated by him by the name of "blue typhoid" on account of the deep-blue tint assumed by its cultures in litmus milk after a certain number of days. Each experiment was checked by plate cultures, so that in no instance was there any contamination by other bacteria. As a general rule, the cultures used in these experiments were bouillon cultures, 24 or 36 hours old and at a mean temperature of 37° C., although experiments were also made with cultures considerably older and grown under different conditions.

The following results were obtained by planting the micro-organisms already mentioned in acid fuchsin bouillon:

(1) After six to eight hours the bacilli acidi lactici, coli communis, and lactis aerogenes develop a considerable quantity of acid, especially bacillus acidi lactici and bacillus lactis aerogenes. This acid reaction is indicated by the increased intensity of the pink bouillon or the appearance of the pink color in the decolorized one.

(2) After twenty-four hours the acid reaction begins to disappear, the bouillon now has a paler tint, and at the end of forty-eight or fifty hours they show a marked alkaline reaction, which increases rapidly until the pink color entirely disappears, the cultures presenting then a yellowish hue.

(3) Bacillus proteus vulgaris does not present an acid stage from the beginning; it alkalinizes the medium so that at the end of twenty-four hours the pink bouillon has lost almost all its color.

(4) Bacillus typhosus shows the acid production of the initial stage later than any of the preceding, it occurring after ten or twelve hours and remains acid for a long period, varying from seven to ten days, and even longer; then the acidity gradually disappears; usually at the twelfth day the decolorization of the pink medium is accomplished.

The changes of reaction of the cultures are shown by the color assumed by the medium, and there will be a sharp distinction between the bacillus typhosus and the other bacteria mentioned, so great that it is easy to differentiate it from the others. Especially is this well marked in fresh cultures. If the culture has been kept on laboratory media for a long time this change is not so pronounced, as was demonstrated in one of the specimens of the typhoid bacillus which had been kept under prolonged cultivation. There was a marked diminution in its acid-producing power, making the difference between its cultures and those of bacillus coli communis very slight. It was found on further study that this property was influenced by the character of the media, especially in the composition of the beef tea, which is by no means constant. Accordingly other media were brought into use, bearing always in mind that such would always be of constant composition, and in which the differences of reaction changes between bacillus typhosus and the other intestinal micro-organisms should be the same, notwithstanding the different ages and sources of the cultures used. This medium is the peptone solution prepared according to the formula of Dunham, with the addition of glycerin and acid fuchsin. The addition of the glycerin is essential to bring about the reaction, as no marked change is observed in simple Dunham solution.

The following results were obtained with this medium:

(1) During the first forty-eight hours bacillus acidi lactici and bacillus lactis aerogenes produce a strong acid reaction, especially so with the former, but bacillus coli communis, bacillus proteus vulgaris, and bacillus typhosus do not produce any marked change.

(2) At the end of forty-eight or fifty hours B. coli communis and proteus vulgaris produced also acid so that the cultures become quite red.

(3) Bacillus typhosus does not show any marked acid production until the fifth or seventh day, when it acquires the same tint as the others.

By observing the color of the cultures after forty-eight or fifty hours it is very easy to distinguish the pale pink or colorless culture of bacillus typhosus from the intensely red of the other organisms. As these results have been constant and have not shown any variation in a very long series of experiments made under different circumstances, this test is positive, establishing the presence of or differentiating bacillus typhosus from the other intestinal micro-organisms and especially from B. coli communis.

It will be noticed that the change of reaction brought about in the glycerin peptone solution with acid fuchsin is different from what takes place in the bouillon, for while the last stage in the bouillon cultures is one of alkalinity after a period of acidity (except in the case of B. proteus vulgaris which has no initial acid stage), in Dunham's solution with glycerin and acid fuchsin no marked change is observed at the beginning, and the last stage is one of acidity. In this case the change of reaction is produced in all probability by an oxygenation of the glycerin, while in the case of bouillon the reaction is due to the influence of the germs of the inosite or any other hydrocarbonates.

Beautiful results were also observed by planting B. coli communis and B. typhosus in Dunham's solution with glycerin and fuchsin, to which agar-agar or gelatin had been added. Stab cultures of B. coli communis and B. typhosus made in the agar medium and kept at 37° C. showed the following: Those of coli communis were pinker than those of bacillus typbosus, the pink color being more marked along the stab, but was diffused throughout the agar. The pink coloration increased, and on the third day the culture presented a brilliant red color. On the other hand, the cultures of bacillus typhosus showed at the end of forty-eight hours pink tint at the upper part of the stab, from whence the color diffused to the upper stratum, gradually fading as it approached the periphery. The deeper strata were unchanged, the line of demarkation between the upper and lower portions being sharply drawn. This condition was changed little by little, the lower portions gradually assuming a red coloration. At the end of twelve days the cultures of bacillus typhosus were red in its whole extent. This shows quite conclusively that the changes are due to an oxygenation of the media by the action of the culture. "Shake" cultures of the same bacteria were made with the same results in a much shorter time, the cultures of coli communis producing the characteristic bubbles on the third day. The red coloration of the cultures of bacillus typhosus began in this case by a narrow superficial zone that gradually extended to the whole tube.

"Shake" cultures in Dunham's solution with glycerin and acid fuchsin showed the difference between bacillus coli communis and bacillus typhosus after being planted twenty-two hours, in spite of the fact that due to extremely hot weather the cultures were kept at 10° C. As in the cases before mentioned, B. coli communis produced an acid change, making more intense the pink color of the cultures, while B. typhosus did not produce any acid until the third day. It is thus seen that in this gelatin medium bacillus typhosus produces acid quicker than in the agar or liquid media.

Bacillus typhosus and B. coli communis were also planted in the somatose solution, with glycerin and acid fuchsin. The results were the same as those observed with the Dunham's solution with glycerin, but the changes were brought about in less than twenty-four hours. At the end of this time the cultures of bacillus coli communis exhibited a bright red color.

It will be seen that by growing the intestinal organisms in the media mentioned above we are enabled to differentiate organisms that are so often confounded with each other.

I am now experimenting with other intestinal bacteria, more especially the spirilla, and the results as far as obtained are promising, and will be given subsequently.

Instruction in diagnosis and treatment of diphtheria and preparation of antitoxin.

Owing to the many inquiries made concerning the antitoxin, and other subjects allied thereto, the following announcement was made in the abstract of sanitary reports, under date of December 14, 1894:

ANNOUNCEMENT.

The attention of State and local health authorities is invited to the report of P. A. Surg. J. J. Kinyoun, in abstract dated November 23, 1894, upon the antitoxin treatment of diphtheria. Dr. Kinyoun has recently returned from Paris and Berlin after a period of observation in the laboratories and hospitals of said cities, where he familiarized himself with all the details of the preparation of the toxins, animal immunization, preparation of the antitoxic serum, and application of the remedy. For the purpose of giving to others the benefit of his experience, the laboratory is now open to a limited number of duly accredited representatives of State or local boards of health who may wish to familiarize themselves with all matters pertaining to this subject as demonstrated by Passed Assistant Surgeon Kinyoun. Communications should be addressed to the Surgeon-General of the Marine-Hospital Service.

In response to the applications received the following letter was sent, which is in itself explanatory:

Sir: Replying to your letter of ——, I inclose herewith an outline sketch of the course of instruction in the Hygienic Laboratory of this Service in the diagnosis and prevention of diphtheria and preparation of antitoxin. The course of instruction will commence on and after January 5, and will require a period of about six weeks, or a shorter period for those already familiar with bacteriological technique.

There will be no charge for the instruction or for the use of instruments.

If you wish to avail yourself of this opportunity please so signify, when a formal invitation will be sent you.

Respectfully, yours,

————,
Supervising Surgeon-General, Marine-Hospital Service.

[Inclosure.]

Hygienic Laboratory, Marine-Hospital Service, diphtheria and preparation of antitoxin.

Scheme of instruction.

1. Bacteriological technique.
2. The identification and diagnosis of the bacillus of diphtheria.
3. Disinfection.
4. Preparation of toxins and immunization of animals.
5. Preparation of the antitoxins.
6. Treatment of cases.

Representatives from the State board of North Carolina, Drs. A. Anderson and W. H. Pate; Dr. E. E. Field, health officer of Norfolk, Va.; Dr. C. N. Hewitt, secretary of the State board of health of Minnesota; Dr. C. G. Smith, of the State board of health of Maine; Dr. C. E. Duke, secretary of the board of health for Cumberland, Md.; and Dr. Elgin, deputy health officer for Montgomery County, Md., have availed themselves of the course of instruction during the year.

Three officers of the Service have also taken a course of instruction in bacteriologic technique.

Pursuant to the law of February 15, 1893, a specimen from a case of supposed leprosy has been examined, and a report rendered thereon.

In December, 1894, the health officer of the District requested that the laboratory undertake to prepare and furnish diphtheria antitoxin for use of his office, and stated that four horses would be set aside for this purpose. Accordingly, I received orders from you to carry on this work in conjunction with the horses which were being immunized for the Service. Since March 5, 1894, diphtheria antitoxin of standard strength has been furnished.

In December last the health officer of the District assumed control of the bacteriologic diagnoses for suspected cases of diphtheria. Since that time until very recently the media reagents, etc., required in the diagnoses have been prepared in the laboratory, and not a few of the microscopical examinations have been made for the practitioners.

As soon as the health office laboratory is in good working order it is intended to cease preparing material and making diagnoses.

Examination of drinking water and disinfection of the mails.—At present the drinking water of the District is being analyzed with special reference to the prevalence of typhoid fever in the city and suburbs. This was undertaken at the request of the health officer. So far about 90 original samples of water from the wells, springs, and the Potomac supply have been given a bacteriologic analysis. In many instances the wells, and, not a few times, the Potomac supply, have been found to be contaminated with intestinal bacteria.

Disinfection as applied to the mails, books, etc., has, by your direction, on request of the Post-Office Department, been a subject of investigation, and will be reported upon as soon as the investigations are completed.

Bacteriological convention.—In June last (21st and 22d) I was, by your order, detailed to attend a convention of bacteriologists, held in New York. This convention was under the auspices of the chairman of the committee of water supplies of the American Public Health Association. The following is my report, made to you on July 1, 1895:

WASHINGTON, D. C., *July 1, 1895.*

SIR: In accordance with your order I proceeded to New York and attended the convention of bacteriologists which held its session on June 21 and 22, ultimo.

The object of the meeting was outlined by Dr. Charles Smart, U. S. A. Professor Welch, of Baltimore, was asked to preside. About fifty persons were in attendance, among whom were the majority of the working bacteriologists of the country. Several members of State and municipal boards of health were also present. The following cities were represented: New York, Baltimore, Boston, New Haven, Lawrence (Mass.), Montreal, Quebec, Toronto, St. Louis, St. Paul, Providence (R. I.), and Philadelphia (Pa.).

Papers were read on the following subjects:

(1) What method shall be followed in neutralizing all media and what standard degrees of reaction shall be adopted? George W. Fuller, S. B.

(2) What effects upon species differentiation are produced by the ordinary differences in composition of peptone-meat-juice-gelatin, etc.? Prof. W. T. Sedgwick, Ph. D.

(3) What media shall be used for all species differentiation, and how shall they be uniformly prepared? George W. Fuller, S. B.

(4) What shall be the medium for and the conditions of the stock culture from which all media are seeded? (Read by title.) Prof. E. O. Jordan, Ph. D.

(5) What shall be the systematic detailed method to be followed in observing the results of cultures and the manner of recording them? Prof. W. T. Sedgwick, Ph. D.

(6) What method shall be adopted by which full benefit may be derived from morphological characteristics? T. M. Cheesman, M. D.

(7) What tests shall be used for separating bacteria into clearly marked groups? Wyatt G. Johnston, M. D.

(8) What shall be the method followed in determining the relation of bacteria to temperature? (Read by title.) George M. Sternberg, Surgeon-General, U. S. A.

(9) What special methods are of value in the isolation of pathogenic bacteria in water? (Read by title.) Prof. E. O. Jordan, Ph. D., and A. C. Abbott, M. D.

(10) What shall be the method of procedure in determining the pathogenesis of bacteria found in water? Prof. W. H. Welch, M. D.

(11) How is variability of species to be regarded? Prof. J. G. Adami, M. D.

(12) What new methods can be suggested for the separation of bacteria into groups and for the identification of species? J. J. MacKenzie.

Papers by Prof. V. A. Moore, B. S., M. D., and Prof. E. B. Shuttleworth, M. D. (Read by title.)

The discussion was by far the most interesting part of the meeting, as it amounted to an interchange of ideas and methods of technique of the several laboratories.

It was shown that by reason of the diverse results obtained by the different workers, some standard would have to be established. Accordingly a committee was appointed to make certain recommendations to this end. It consists of Prof. William H. Welch, chairman; Professor Sedgwick, Mr. Fuller, Professor Adami, Prof. Theobald Smith, Dr. A. C. Abbott, Dr. Cheeseman, and Dr. Charles Smart.

It was recommended by the meeting that the committee should take into consideration the several subjects under discussion, and in due time make recommendations concerning a uniform method to be followed in the bacteriological examinations of water.

From the standpoint of the bacteriologist, the convention was a success in more ways than one. This was the first meeting of the kind in which the bacteriologists had been brought together. The good effects will be manifest in the several branches of this work.

Although an acknowledged success, I think the meeting was in many ways disappointing to the committee which was responsible for it. There seemed to be an idea that a report would be made to it on adjournment, but such was not possible.

The consensus of opinion was that it would be well to effect some organization through which the workers in bacteriology would be brought together at stated times, for the purpose of discussing the many subjects which are constantly arising—matters of great importance to the bacteriologist, but not of interest to others.

Respectfully submitted.

Laboratory property.—Quite a number of additions have been made to the equipment of the laboratory, including a complete set of apparatus for production of diphtheria antitoxin, as well as certain apparatus and utensils for the study of the subject of serum-therapy. Four new microscopes have been added for use in the course of instruction given to members of the corps and to health officers. A small, convenient field outfit for bacteriologic research has also been provided. This is intended for the diagnosis of suspected cases of cholera, should such an emergency arise.

In connection with the investigation concerning the cause and the treatment of smallpox, a small stable located near the Bureau has been rented for housing the animals required for experimentation.

It might not be without interest to call attention to the method of keeping a property return for the laboratory. For this purpose a card-index system has been devised, which is simple and very convenient. This is not intended to supplant the annual property return, but is for use only in the laboratory. Appended is the form of card.

[U. S. Marine-Hospital Service—Form 91.]

HYGIENIC LABORATORY—ANIMALS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 94.]

HYGIENIC LABORATORY—BACTERIOLOGICAL APPARATUS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 96.]

HYGIENIC LABORATORY—CHEMICAL APPARATUS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 95.]

HYGIENIC LABORATORY—MICROSCOPICAL APPARATUS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 93.]

HYGIENIC LABORATORY—MISCELLANEOUS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 97.]

HYGIENIC LABORATORY—PHOTOGRAPHIC APPARATUS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 92.]

HYGIENIC LABORATORY—REAGENTS.

No.	Article.	When received.	From whom.

[U. S. Marine-Hospital Service—Form 90.]

HYGIENIC LABORATORY—EXPENDABLE.

No.	Article.	Condition.	Disposition.

In conclusion, I have again to respectfully call attention to my previous recommendations made with reference to the present location of the laboratory. As our work increases it becomes more and more apparent that its present location in the Bureau building must be abandoned. * * * I would respectfully recommend that some provision be made for its removal from the Bureau and, if possible, its transfer to a building better suited for its requirements.

Very respectfully, yours,

J. J. KINYOUN,

Passed Assistant Surgeon, Marine-Hospital Service.

SANITARY INSPECTION SERVICE.

In accordance with the law of February 15, 1893, and the regulations of the Treasury Department, the whole coast of the United States, from Maine to the State of Washington, was divided into ten inspection districts, and a regular medical officer of the Marine-Hospital Service detailed as inspector of each district, who periodically made an examination of every quarantine station, State and local, within his territory. Reports have been received from these inspectors upon the blank form furnished by the Bureau, a description of which was included in the last annual report. The reports were in general satisfactory, showing a knowledge of and a disposition on the part of State and local quarantine officers to comply with the Treasury regulations. A number of important lapses, however, were discovered and corrected. For example, it was found that at several ports on the North Carolina coast no quarantine examination was provided for at all by the State or local authorities. These breaches in the line of sanitary coast defense were filled by appointment of sanitary inspectors at the ports of Beaufort, Newbern, and Washington.

In Georgia a sanitary inspector for quarantine was appointed at Doboy.

With regard to Florida the following letters describe the danger that was apprehended and the special inspection service inaugurated:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 8, 1895.

SIR: Information has been received of a reliable character of the danger of the introduction of yellow fever into the State of Florida by means of fishing smacks from Cuba.

Formerly the city of Habana was supplied with fish by vessels owned in Key West, but the Spanish Government imposed such heavy duties upon these vessels that the trade on the part of American fishing smacks has been abandoned, and it is now carried on by small vessels owned in Habana. These smacks lie in a portion of the harbor of Habana liable to infection, namely, at the foot of the Cabanas at the point of discharge of a sewer from this fortification, which is at times infected. The men employed on them are frequently new arrivals in the country, and therefore the more likely to become infected with yellow fever. The smacks enter Florida waters to catch fish for the Habana market, but it is a matter of common report that they engage also in smuggling rum and tobacco, landing at unfrequented and unguarded points on the coast. They may also land members of their crews sick with yellow fever or infected clothing or merchandise. The danger of the introduction of yellow fever by this means has always been considered imminent, but this year it is particularly threatening by reason of the insurrection in Cuba, and it has been publicly asserted that, in case of failure of the insurrection, a number of Americans and others serving with the insurrectionists, in order to escape the penalty of death upon capture, will seek to return to the United States through the medium of these small vessels. In confirmation of the above, reference is respectfully made to report of Sanitary Inspector Burgess, pages 296–298, Abstract of Sanitary Reports, 1888, report of P. A. Surg. L. L. Williams, dated May 29, 1895, and to letters on file in this office from others on the same subject.

It is necessary, therefore, during the coming summer and fall to meet this danger and prevent this illicit traffic by a close watch upon both the east and west coast of Florida, but more particularly the western coast. These fishing smacks, it should be remarked, do not make entry or attempt to make entry and thus escape inspection by the local quarantine officer, but a revenue cutter officer may board and examine them under the law.

I have to urge that three revenue cutters be detailed for this special duty, and, on consultation with the Chief of the Revenue-Cutter Service, I am informed that said vessels are available; one cutter stationed at Key West to patrol from Biscayne Bay to Charlotte Harbor, a second from Charlotte Harbor to Cedar Keys, a third from Cedar Keys to Pensacola. Inasmuch as the cutters can not enter the shallow waters which are frequented by these small fishing vessels, it will be necessary to have each cutter provided with one or more launches. * * *

Your approval of these measures is respectfully requested, letters embracing the details to be submitted later.

Respectfully, yours,
WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

The SECRETARY OF THE TREASURY.

[Indorsement.]

The plan suggested within is approved and the Surgeon-General Marine-Hospital Service is directed to make specific recommendations in connection therewith.

J. G. CARLISLE, *Secretary.*

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 17, 1895.

SIR: I have the honor to inclose herewith copy of a letter addressed to the Honorable Secretary of the Treasury, with a copy of his indorsement thereon, approving the recommendations therein made which relate to the patrolling of the coasts of Florida during the present season until November 1.

In accordance with the understanding arrived at with yourself during a personal interview, this day, I have to request that the revenue cutters *McLane, Morrill,* and *Forward* be detailed for this duty at once, and also that the revenue cutter stationed at Savannah be directed to patrol the coast from Savannah as far as Biscayne Bay and to operate in the same manner as the other cutters.

I have further to request that the following be embodied in the letters of instructions to the commanding officers of the cutters:

The cutters are to cruise on the special cruising grounds with a view to intercepting within American waters fishing smacks or other vessels hovering near the coast with no intent of making entry at a legalized port of entrance. Any vessels found within the said waters and hailing from a foreign port and not provided with a bill of health in the form prescribed in the United States Quarantine Regulations, duly signed by a United States consul, to be seized and carried to the nearest quarantine station, there to be disinfected and held five days after disinfection, and afterwards to be delivered to the collector of the nearest port of entry. As these small vessels may be infected with yellow fever, the inspecting officer should hail them to inquire if sickness is aboard, and if an affirmative reply is received the inspecting officer should not board, but should order the vessel to the nearest quarantine station and enforce the order.

As the cutters are unable to go into shallow water, they should lie off points where these vessels congregate, or near the inlets where it is believed they may have entered, and the launches should be sent into the shallow inlets and bays in search of them; the crews of the launches to be properly armed, and supplied with provisions necessary for a two or three days' cruise before return to the cutter. The commanding officers of these cutters should communicate frequently with the sanitary and customs inspectors stationed at various points within their cruising districts.

A record should be kept of every vessel inspected and the action taken in relation thereto, and a report shall be transmitted at the close of each month for the information of the Marine-Hospital Bureau.

I have to inform you that measures are being taken to supply the revenue cutters with launches properly equipped for this service.

I have further to request a statement from you whether you have officers sufficient for the command of these launches to be sent on this important duty, or whether it will be necessary to employ men for this purpose.

I have the honor to remain, respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Capt. C. F. SHOEMAKER,
Chief, Revenue-Cutter Service, Treasury Department.

Following are letters of instructions similar to those transmitted to the commanding officers of all the cutters detailed for this duty, and to all the sanitary inspectors:

TREASURY DEPARTMENT,
Washington, July 24, 1895.

SIR: Upon the completion of the duty for which your command was ordered to Mobile, under date of the 17th instant, you will return to Key West and cruise your vessel from that point to Tampa, with headquarters for pay, rations, and fuel at Key West as usual.

In addition to your regular duties under the customs and navigation laws, you are directed to pay strict attention to the enforcement of the neutrality laws, and to lend all aid possible with your command to the United States Marine-Hospital Service in the rigid observance, by all concerned, of the United States Quarantine Regulations (Title LVIII, R. S., also chap. 114, vol. 27, Stat. L.).

A sanitary inspector of the Marine-Hospital Service will be assigned to your command, and will be berthed and messed as a ward-room officer.

A naphtha launch will be furnished your command by the Marine-Hospital Service at Key West, for the use of the inspector referred to, in the discharge of his duties under the instructions given for his guidance by the Supervising Surgeon-General of the Marine-Hospital Service. The launch will be provided, when turned over to you at Key West, with all necessary appurtenances, together with a supply of naphtha fuel for the same, in safe iron packages. You will see that this naphtha fuel is properly stored on shore, or where you can readily obtain a supply of it as the exigency therefor may arise, keeping only such quantity on board your vessel as in your judgment may be needed for present use. The packages of naphtha must not be stored below, but kept always in a safe place upon the spar deck.

A suitable man will be shipped by you to take charge of the launch when it is turned over to you. You are informed that a man familiar with the handling of naphtha launch machinery and with naptha fuel will be sent to Key West to instruct the man you will employ for charge of the launch. You are authorized to employ for temporary service, at suitable rates of compensation per month, such number of men as you will deem absolutely necessary for the efficient manning of the launch. It is thought that one man, in addition to the above mentioned, will be sufficient to handle the boat under ordinary conditions, but of this you will judge and report your action in the matter to the Department. The launch's crew will be berthed and rationed with your crew, and will be paid by the Marine-Hospital Service, and you will, at the end of each month, submit a bill, properly certified, for the cost of rations for those men. In like manner and at the same time you will submit pay accounts approved by yourself for the compensation of the launch crew.

With especial reference to the enforcement of the quarantine regulations, you are instructed as follows:

In the course of your cruising with a view to intercepting, within the national jurisdiction, fishing smacks or other vessels from foreign ports which may be found near the coast, with the intention of making a port of the United States, and not having on board bills of health signed by the consular officers of the United States at the foreign ports from which the vessels last sailed, will be sent by you to the nearest quarantine station, to report there to the medical officer in charge for his action. You will hail all craft from foreign ports fallen in with, to ascertain whether there is sickness on board; and if an affirmative reply is received the vessel will not be boarded, but you will order it as above directed, and enforce the order. If the reply should be negative, you will cause the vessel to be boarded by the sanitary inspector and thoroughly examined in the interest of the quarantine service, and by an officer of your command, under the customs, navigation, and neutrality laws.

The launch while cruising should be in charge of the sanitary inspector as far as in your judgment that charge would be compatible with safety. But in any event you will afford the inspector every facility within the resources of your command to enable him to perform efficiently his duties. You will time the movements of your command so as to enable the sanitary inspector to visit the bays, bayous, and inlets on your cruising ground as frequently as may be necessary to render the work as effective as possible.

In disposing of cases which may arise under the quarantine regulations and laws, you will confer freely with the inspector attached to your command, and should it become necessary at any time to employ force in the execution of the laws and regulations, you will do so.

It is expected that you will carry out the purpose of this order in the most energetic and vigilant manner possible.

You are authorized to retain the pilot of the *McLane*, and to permit him to stand a deck watch whenever in your judgment it would be proper to do so.

You will acknowledge the receipt hereof, and advise the Department of your departure from Mobile, and assumption of your duties as herein ordered.

Respectfully, yours,

C. S. HAMLIN, *Assistant Secretary.*

COMMANDING OFFICER REVENUE STEAMER MCLANE,
Mobile, Ala.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 9, 1895.

SIR: I have to inclose herewith your appointment as sanitary inspector in the Marine-Hospital Service for the duty therein stated. The compensation begins from date of oath, which should be subscribed before a notary public upon the inclosed forms, both to be returned to this office.

You are directed to report at once to the commanding officer of the United States revenue cutter *Morrill,* now lying at Charleston, S. C. It is expected that this vessel will proceed to the coast of Florida in a few days, and you will be prepared to accompany it. A naphtha launch will be provided, and a part of your duties will be to cruise along the coast of Florida, using the cutter as headquarters, for the purpose of detecting vessels violating either the customs or quarantine laws of the United States, a copy of the latter being herewith inclosed.

You will understand that you serve under the orders of the commanding officer of the cutter, and all official communications must be sent through him.

Further instructions will be furnished you from time to time, as may be necessary.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Dr. BERNARD E. BAKER,
Sanitary Inspector, United States Marine-Hospital Service, Charleston, S. C.

The sanitary inspection of Tampa is narrated in another portion of this report, but it is proper here to mention in connection therewith the detail of Surg. W. H. H. Hutton as sanitary inspector in the Southern States during the same period, this officer being held in readiness to put in operation any necessary measures.

On the Gulf Coast great laxity in the matter of quarantine was found at Pascagoula, Miss. Vessels which at other quarantines in the South, coming from yellow-fever infected ports, were required to undergo and were actually put through a thorough course of cleansing and disinfection, at the Round Island Quarantine (the station for Pascagoula) were simply inspected, not cleansed nor disinfected in accordance with the regulations, and were allowed to enter at Pascagoula. There was great danger in this lapse of quarantine, which was discovered at the very beginning of the season, and instructions were issued to the collector of customs for the Shieldsboro district to allow entry to no vessels thereafter at Pascagoula without the quarantine certificate of the medical officer of the United States quarantine station at Ship Island.

The order was subsequently modified so as not to include noninfected vessels arriving from noninfected European ports. There is no question that a serious menace was removed by the action of the Department, which is narrated more in detail under the head of "National quarantine law and regulations."

Inspection of the ports of Washington revealed the entire absence of quarantine officers or quarantine inspection at the ports of Grays Harbor and Willipa, South Bend, and sanitary inspectors were appointed at those places.

The utility of the inspection service was illustrated in September, when the cholera was announced as raging severely in Japan and China, and had extended to the Sandwich Islands, and public fear was manifested that it might be conveyed to the Pacific Coast.

The following telegrams were received and sent. It may be remarked that in view of the Treasury regulations to be observed at foreign ports it is unnecessary to formally proclaim any foreign port infected.

As soon as the United States consul knows of the existence of epidemic disease, certain stringent regulations are to be enforced by him at once without waiting for formal proclamation.

[Telegram.]

SAN FRANCISCO, *September 3, 1895.*

SIR: I am directed by the California State board of health to communicate to you the current report that Asiatic cholera prevails in several Oriental ports having steamer communication with United States Pacific ports, and that it prevails also at Honolulu in the Hawaiian Islands, a foothold having been recently obtained at that point through passenger travel by steamer from China and Japan. Should this general and unofficial information be corroborated by consular reports, it is deemed advisable that the Government should declare such Oriental and island ports infected, and proceed to establish such quarantine against them as shall insure compliance with the quarantine laws and regulations of the United States.

J. R. LAINE, M. D.,
Secretary California State Board of Health.

WALTER WYMAN,
Surgeon-General Marine-Hospital-Service, Washington, D. C.

[Telegram.]

WASHINGTON, D. C., *September 4, 1895.*

DR. J. R. LAINE,
Secretary State Board of Health, Sacramento, Cal.:

Telegram received. All ports on Pacific Coast have been inspected by Marine-Hospital officers this summer, and steps taken to perfect every quarantine deficiency. Consular report from Honolulu verifies presence of cholera; also Yokohama. All information in weekly Abstract Sanitary Reports, which all quarantine officers receive. Strict compliance with Treasury regulations will be insisted on, both at foreign and domestic ports.

WYMAN, *Surgeon-General.*

On the appearance of cholera in Honolulu and its marked increase in Japan and China, a sanitary inspector was appointed to assist the United States consul-general at Yokohama, which is a port of call for all vessels sailing from the Orient to the United States, and another was appointed to assist the United States consul-general at Honolulu.

In addition to the above inspection at the beginning of the quarantine season in the latter part of April and 1st of May, I made a personal inspection of the following ports and places, namely: Habana, Dry Tortugas Quarantine, Tampa Bay Quarantine, Gulf Quarantine (Ship Island), Round Island (Pascagoula) Quarantine, Brunswick Quarantine, South Atlantic Quarantine, and later Cape Charles, Delaware Breakwater, and Reedy Island quarantines.

Conferences were had also on this inspection trip, concerning quarantine matters, with the authorities of New Orleans, Biloxi, Pascagoula, Mobile, the State of Florida, Brunswick, and Savannah, Ga.

In November last I paid a visit of inspection to the Grosse Isle Quarantine, the chief quarantine station for Canada, on the St. Lawrence River.

An inspector was maintained at Nogales, Ariz., with a view to preventing introduction of smallpox from Mexico.

FOREIGN INSPECTION.

The foreign inspection service maintained during the year, in addition to that at Yokohama and Honolulu, previously mentioned, was as follows:

One sanitary inspector at Rio de Janeiro, whose reports have been published from time to time in the Abstract of Sanitary Reports; two sanitary inspectors at the port of Havana; one sanitary inspector at Santiago de Cuba.

Under the direction of the Bureau a sanitary inspection service was instituted in Cuba with a view to keeping the Bureau informed as to the prevalence of yellow fever. The sanitary inspector at Santiago de Cuba was instructed to make report upon the seaports in the eastern end of the island, and the sanitary inspector at Havana was directed to employ a competent physician to make a similar inspection for ports on the western end of the island. These reports were duly received and published in the Abstract, and embraced all the seaports of Cuba.

In addition to the above regular inspection service arrangements were made with the health authorities of New Orleans and Mobile, by whom inspectors had been placed in a number of South and Central American and West Indian ports, with a view to facilitating the fruit trade, to transmit to the Bureau copies of the reports of said inspectors. This was done and the reports published in the weekly abstracts.

The number of sanitary inspectors employed by the Bureau from June 30, 1894, to date of this report was 32. This number includes inspectors appointed in foreign ports, those employed at quarantine stations and on the border, the special inspectors serving on the revenue cutters, at quarantine stations, and those appointed for vaccination of crews on Western rivers.

Special attention is invited to the following report from the sanitary inspector in Habana, which shows that there were 877 vessels examined by himself and assistant from June 30, 1894, to October 15 of the present year. The crews of these vessels numbered more than 30,000 and the passengers about 13,000. The duties of the sanitary inspector at Habana are to assist the United States consul-general in giving requisite bills of health and to certifying to the immunity from yellow fever, smallpox, and leprosy of all persons bound for the United States.

REPORT OF THE SANITARY INSPECTOR, MARINE-HOSPITAL SERVICE, AT HABANA.

HABANA, ISLAND OF CUBA,
October 15, 1895.

SIR: I have the honor of submitting to you the following report of the transactions at this quarantine station for the fiscal year ended June 30, 1895, with the additional time up to October 15.

The following table shows the number and class of vessels which were inspected from this office during that time, and which ultimately went to the United States, also their nationality, the number of their officers and crew, as well as passengers:

Nationality.	Steamers.	Ships.	Barks.	Barkentine.	Brigs.	Brigantines.	Schooners.	Total.	Number of crews.	Number of passengers.
American	367	1	24	11	1	1	115	520	19,712	11,878
British	156	1	2	2	5	4	21	191	4,268	10
Spanish	86	5	40	1	2	5	3	142	5,805	1,018
Norwegian	10	......	5	......	......	......	......	15	221	......
German	3	......	......	......	......	......	......	3	75	......
Italian	......	......	4	......	......	......	......	4	42	......
Austrian	1	......	......	......	......	......	......	1	22	......
Russian	1	......	......	......	......	......	......	1	27	......
Total	624	7	75	14	8	10	139	877	30,172	12,906

As will be seen by above table, 877 vessels of all classes went to different parts of the United States in that time, with 30,172 officers and crew, and 12,906 passengers; 624 of those vessels were steamers, 7 were ships, 75 barks, 14 barkentines, 8 brigs, 10 brigantines, and 139 were schooners of all sizes. When it is taken into consideration that every one of those vessels was visited for inspection at least once, some twice, others three times—and in some bad cases more visits were made, averaging not less than three visits a day for every day in the year—at all hours, in all sorts of weather, and in all parts of the bay, some idea of the amount of work done in that one direction can be had—in the aggregate, 1,200 visits, approximately, in the above-mentioned time.

Bills of health are founded on above inspection. As the regulations require each vessel to carry its bill of health in duplicate, and one to be retained in the office at Habana, the clerical work connected with the "making up" of over 2,600 bills of health, and the weekly report of them in the abstract for that purpose of the Marine-Hospital Service, is considerable.

The officers and crew of those vessels, consisting of 30,172 persons, were inspected personally, and everyone who had not facial evidences of a former attack of smallpox or marks of recent vaccination were vaccinated, and those who were suffering from any infectious disease were either sent ashore or their case was reported in the bill of health of the vessel.

Passengers.—Of the 12,906 passengers who went to the United States in that time 11,878 went by American steamers, 1,018 by Spanish steamers, and 10 shipwrecked sailors went by an English tramp steamer. Vaccination was performed on such of those as the regulations require, and health-acclimation certificates to the number of 5,888 were given to passengers during the quarantine season—2,850 for Florida, 2,801 for New York, and 237 certificates of protection from smallpox to passengers going to New Orleans.

The usual health and acclimation certificate issued here substantially implies that the passenger is not only in good health, but enjoys immunity from yellow fever, either by having had a previous attack of the disease or by having lived ten years in an endemic focus of it and giving proof of those two facts, and that he is protected from smallpox either by having had that disease or by recent successful vaccination or by present vaccination.

Though these certificates greatly facilitate intercourse with the United States and render means of communication possible, which without them would hardly be practicable the work attending the obtaining of trustworthy proofs of immunity from fever, I have no hesitation in saying is more perplexing, harassing, and wearing than any work connected with any quarantine or inspection service in the world. Reasons might be given why this is so, but it is hardly necessary.

Inspection of various Cuban ports.—Having been authorized to employ from time to time a competent physician to make an inspection of the various ports of Cuba, I have to report that from July 20 to October 14 a physician has, as often as seemed necessary, visited the ports on the north coast from Caibarien west to Sagua, Cardenas, Matanzas, etc., on to the west end of the island, and on the south coast from Tunas de Zaza on the east to Cosilda de Trinidad, Cienfuegos, Batabano and others to the west end of the island.

This seems to have been a very wise precautionary measure, for yellow fever was found where it was not known to exist and in places which under certain easily supposable circumstances might greatly endanger the southern portion of the United States. Original and translated reports of those inspections have been promptly forwarded to the Supervising Surgeon-General of the Marine-Hospital Service.

Hospitals, etc.—Frequent visits have been made to hospitals and all suspicious places by the inspector to the end that he may be informed as to what diseases are in the city.

Cemetery.—As the only way of ascertaining promptly the number and causes of death in the city and port is by the certificate of death given by the different attending physicians, regular visits are made to the cemetery to review the certificates deposited there.

In no other way could prompt mortuary reports be made for the bills of health and keep the Bureau of the Marine-Hospital Service informed.

City and Port of Habana.—The well-known unsanitary condition of Habana, with its filthy streets, its worse than worthless sewers, its indoor open cesspool water-closets, its land-locked harbor, with sewage and liquid organic filth from slaughter-houses pouring into it, and under its pile-supported wharves, its endemic infectious diseases ever menacing neighboring countries are all constant sources of anxiety to the sanitary inspector, and over which he must exercise untiring vigilance, for well he knows that some points, some localities, some wharves may be badly infected and dangerous to persons or vessels frequenting them, while others are comparatively safe, and it is his province to discover them and point them out for the benefit of his country.

That this sanitary and quarantine inspection service with its ever watchful vigilance over vessels, crews, passengers, cargo, food, and all aboard going to the United States, its careful system in the issuing of health and acclimation certificates, its inspection of outlying ports, the frequent visits to hospitals, etc., to ferret out infectious diseases, its prompt securing of collateral mortuary information by examining all the death certificates at the cemetery, its watchful supervision of the city and port, and the imparting of all pertinent information to the Bureau of the Marine-Hospital Service and to the health officers at ports in that country by reliable bills of health, has and does serve to benefit and protect very materially the health interests of the United States and diminish the risks of the introduction of infectious diseases there is abundant proof. First, in the prevention of the introduction of infectious diseases, endemic here.

Yellow fever has been by it so much checked that now not over one case of yellow fever goes there where there was ten before.

Smallpox is completely prevented from going there.

Leprosy, which seems to be on the increase here and in many places, is never allowed aboard of any vessel.

Marked evidence of the diminution of risks which this quarantine-inspection service produces is seen in the generally improved sanitary condition of vessels, their greater cleanliness, the prevention of there being concealed on board any person with contagious disease, the desire of captains to keep clear of well-known infected places and wharves, in orders of some lines never to allow their vessels to go to wharves or their crews to go ashore, and in the forced improvement of the sanitary condition of ballast.

This inspection service assists very materially by its health and acclimating certificates in rendering possible fast mail routes into and through the United States to be kept open the entire year in safety without any detention to mails or acclimated passengers; for instance, the route through Florida.

Business interests of other ports in the United States are very much convenienced by the acclimation certificates enabling passengers to land immediately on the arrival of a steamer at a port; as New York, for instance. In no other way could the United States derive those great benefits.

The notorious untruthfulness, bad faith, and misrepresentation common to everybody connected with shipping in this port has constantly to be exposed and corrected by the sanitary inspector in the health interest of the country he serves, resulting in improvement or exposure of the kind of ballast carried by a vessel, its cargo, and the disinfection or nonshipment of such objectionable things as hides, bones, etc. Other operations constantly performed by the sanitary-inspection service might be mentioned, but it is thought that sufficient has been said already to demonstrate the invaluable services rendered to the health interests of the United States by what is accomplished by that service here.

Very respectfully, your obedient servant,

D. M. Burgess,
Sanitary Inspector Marine-Hospital Service.

Surgeon-General Marine-Hospital Service.

Report of quarantine facilities at Victoria, British Columbia.

October 16, 1895.

Sir: In accordance with telegraphic orders of October 12, I have the honor to submit the following report on the quarantine facilities of Victoria:

Accompanied by Dr. Montizambert, who was here visiting our quarantine station I visited the Victoria quarantine station, situated at Williams Head, about 7 miles from the city. The station is situated on a point of land near Race Rocks, which serves as a wind-break. The wharf is built farther around the point, in a small bay, where there is good anchorage.

The wharf is about 400 feet long and is very substantially built. It is fitted with a track for tram cars for the purpose of carrying goods, etc., from the ship's side to the sterilizer. The sulphur furnace is also built on two small cars, and can be run alongside of the ship.

The engine house, which contains the steam sterilizer, is situated on one end of the wharf, and is well equipped.

The sterilizer is 25 by 8½ by 8½ feet. It is modern, having jacket and inside chamber, exhaust pump, thermometer, and gauges. The one defect is lack of electric contact thermometer for the chamber. The sterilizer was put in operation, and worked perfectly.

The reservation consists of 60 acres; is high, rocky, and sparsely covered with trees. There are 7 buildings. The surgeon's quarters are comfortable, the house having 14 rooms. The detention barracks for cabin passengers will easily accommodate 60 persons. The building is long and narrow, with hall running through the middle. The rooms are on each side of this hall, the rooms being finished "shipshape." Each room has double lower and single upper berth, hot and cold water. No room has lights. There are bathrooms and closets in each end; there is a kitchen, dining room, and large visiting room with fireplace. This building, like all the others, is painted with an antiseptic paint. There are no furnishings for this building.

The executive building is about 200 yards from the barracks. It is two stories in part, having several offices, rooms for quarters, small wards for the sick, kitchen, dining room, storerooms, bathrooms, and water-closets. There are 10 wire beds in the wards, which were formerly in use at the old station, Albert Head. Besides these there are no furnishings.

The Chinese detention barracks are about 300 yards over the hill from the executive building. It is a very large, flat building, cut up into three large compartments, each about 40 by 70 feet. There are washtubs with water supply, kitchen, and four small storerooms. It is estimated that about 300 persons can be cared for in this building in the Chinese fashion. A Chinaman prefers the floor to the bed, I believe. There is a large privy-house over the water's edge for use instead of water-closets. The kitchen is supplied with a large hotel range. There should be shower baths, but there are no baths of any kind.

The detention barracks for Japanese are just the same as the above, with the exception of being about a third smaller.

The water supply is brought from the foothills about 3 miles away. It is stored in a large tank on the highest point of land. The water is good. The tank holds 20,000 gallons.

The other buildings are small houses, etc. The roof capacity for persons would be about 1,000. The station is supplied with several tents, and these could be utilized if needed.

The station has, besides, a small tug with a crew of 4. There is only 1 man at the station, the extra work being performed by the crew from the tug. The engineer of the tug has charge of the sterilizing plant.

The surgeon, Dr. McNaughton Jones, claims that all baggage of steerage passengers is sterilized, regardless of destination. * * *

All Canadian Pacific Railroad steamers have orders to put into the quarantine station before proceeding farther.

Dr. Jones is the local quarantine officer appointed by the Dominion Government, and he is responsible to Dr. Montizambert.

The city of Victoria has a health officer, Dr. Duncan. There is an isolation hospital that will accommodate 24. It was built for smallpox cases. There is at present a suspicious case isolated there.

The water supply of the city is obtained from a lake about 5 miles out of the town. All the surrounding land is owned by the city. The water contains a very great deal of decayed vegetable matter, and is bad. In summer the lake is quite low.

Dr. Montizambert informed the Bureau recently that no steerage passengers were being brought into Canada at this point. He was misinformed, and regrets the matter very much, and authorized me to state this to you.

J. O. Cobb,
Passed Assistant Surgeon, Marine-Hospital Service.

HAWAIIAN ISLANDS.

Report of Sanitary Inspector Ryder, Marine-Hospital Service.

Honolulu, Hawaiian Islands, *October 17, 1895.*

Sir: I have the honor to submit a report as required by article 8, "Quarantine Laws and Regulations of the United States."

There being no regulation forms at the United States consulate office, the form adopted by me may not come up to the requirements, but I trust it will be accepted until such forms as are required by law are in my possession. * * *

Regarding the situation here, I report the following:

The *Belgic* arrived here August 9, with three deaths aboard. From depositions of a Maui (Hawaiian Islands) Chinese merchant and other Chinese who were in the steerage on that trip it is ascertained that the Chinese that died on the trip over had the following symptoms: Vomiting, diarrhea with watery stools, some resembling rice water, muscular cramps, cold extremities, and collapse.

They also report that one of their number died of these same symptoms before boarding the *Belgic* in Hongkong.

Among the Chinese removed to the Hawaiian quarantine station was one suffering from diarrhea, evacuations occurring while being removed from the ship. This man died the next day with the same symptoms as those that died aboard the *Belgic.*

A Chinese attending this man in quarantine was taken with the same symptoms and died in fourteen hours.

Another quarantined Chinese died, having the same symptoms.

On the 17th of August a native woman living in the district adjacent to the quarantine station was taken down with cholera. This woman had been crabbing on the beach adjacent to the quarantine station, and had eaten a portion of her crabs in a raw state.

Several other cases occurred in this district. From this district it can be traced, by means of a feast held by the natives in the house of one of the women that was first taken sick, to the various infected districts of the city.

By the indefatigable efforts of the board of health and citizens of Honolulu the disease has been kept under control, and the infected area is now confined to a small section, the mouth of the Nunana stream, which is under military guard. There has been no new case of cholera since the 3d of October, and it is to be hoped there will be no fresh cases. Bearing in mind the fact that the means of infection are not entirely eradicated, I shall do my duty by taking every required and necessary precaution to prevent any germs reaching the United States.

Inclosed you will find two microscopical slides prepared from the dejecta of the last case of cholera. The specimens contain comma bacilli mixed with many other intestinal microorganisms.

I have found separate colonies of the bacilli and am cultivating the same to obtain pure cultures. I also inclose a drawing of one of the colonies as seen under the microscope.

Hoping this communication is satisfactorily made and that it will meet your approbation,

I am, your most obedient servant,

C. CLIFFORD RYDER,
Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

HONOLULU, HAWAIIAN ISLANDS, *October 25, 1895.*

SIR: The cholera epidemic has ended; in fact, the epidemic type of the disease ceased September 18.

There have been 3 sporadic cases since that date, 1 September 27, 1 September 28, and the last October 2. One was infected from eating raw crabs taken from the infected Hunana stream, and the other 2 from drinking water from infected tarrow patches. The disease was confined to these 3 cases, and did not, and it is to be hoped will not, break out again in an epidemic form.

It is going to be some time, however, before the danger of infection from the mouth of the Hunana stream and the adjacent harbor is entirely eradicated. The stream where it empties into the harbor is very sluggish, and from the organic matter and slight alkalinity is going to preserve the cholera germs for some time to come. It is under guard, but this has been eluded once before with disastrous results. The dredges began work to-day dredging out the harbor, the dredged matter to be guarded. The same fact pertaining to danger therefrom applies here as in the case of the Hunana stream. This afternoon I called attention, in a meeting of the board of health, to the inefficiency of the guard at the outlet pipe of the dredges, as I had just observed children playing in the slack water and ooze from the dredges while the guard was watching the "slickens" pour out at the end of the pipe. Therefore the necessity for continued and careful inspection on my part until every possible source of danger is entirely removed from this port.

Hongkong was not declared nor considered an infected port when one of the Chinese among the steerage passengers died with choleraic symptoms just before they boarded the *Belgic*, yet how easily it slipped over and into Honolulu. It has already cost this Government many thousands of dollars, not speaking of the damage to commerce and other industries.

There is great need for continued inspections and care to secure safety to the United States, by one whose interest in them is paramount, or at least equal to his interest in the Islands.

The following precautions are being taken by the Hawaiian Government to protect the other islands: The personal effects and baggage of the steerage passengers, and of the cabin passengers that came from old infected districts, are fumigated before going aboard. The regulations regarding the interisland commerce are somewhat similar to the "United States Quarantine Regulations." The crews of interisland steamers are not allowed ashore on arriving at the other islands.

Continually new dangers arise of transmitting infection to the United States, as, for example, only this morning I refused the shipment, unless thoroughly disinfected, of the hides of cattle that had been wading through infected water just before being slaughtered. * * *

Respectfully, yours,
C. CLIFFORD RYDER, M. D.,
Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

CHOLERA.

Continuing my record of the progress of cholera throughout the world at the point where it was closed in my last annual report (November, 1894), it is to be said of this year's features that the trail of the epidemic of 1892 is still to be seen over the route of its progress during that year in Europe, although it has not since then attained such localized proportions.

CHOLERA IN JAPAN.

The salient feature of this year's epidemic has been its appearance in the Empire of Japan, where it attained threatening proportions after the termination of hostilities with China, and the mortality therefrom reached about 69 per cent in a total of 55,611 cases, as up to the 3d of October there had been 38,829 deaths reported. At this date the epidemic was considered as abating, and it is to be noted that the death rate remained unusually high for a declining epidemic, showing as late as the third week in September a mortality of 80.33 per cent. The epidemic was widely disseminated throughout the Empire by the return of troops and coolies from the seat of war, and nearly every province contained foci of the disease. The development of commercial intercourse between this country and Japan in the last few decades, and now increased by the establishment of new steamship connections with our Pacific Coast, afforded opportunity not hitherto seriously considered of the entrance of this dread disease into this country by our Western frontier. Although Japan has never been considered a probable source of danger to this country from cholera, in consequence of the long ocean voyage separating us, yet the history of epidemics which have occurred in that island Empire discloses a continuous presence of that disease since 1877, when systematic records were first kept by the authorities. When it is understood that in that small territory there have been 481,214 cases with 323,805 deaths, a mortality representing about 65 per cent, covering a period of eighteen years to July of this year, the average number of cases being about 26,000 per annum, the better we may comprehend the danger from this point. In 1879 there were 162,637 cases with 105,786 deaths, and in 1886 there were 155,923 cases with 108,409 deaths, both terrible records of the inroads this fatal disease makes when it once fastens itself upon a people ignorant of its character and unable, as they have been until very recently, to deal with it intelligently.

The present epidemic in Japan afforded the Japanese health authorities, acting through the department of home affairs, an opportunity to apply modern sanitary measures to check its progress and eradicate it from their midst. The sanitary inspector of this service on duty at Yokohama, Dr. Stuart Eldridge, reports that "the disease, by most stringent measures on the part of the Japanese authorities, has been held in check in a manner and with a success, which so far as I know, is, all things considered, unprecedented." And again he says: "That the disease has not spread here extensively (Yokohama) is due, simply and solely, to the very active measures of precaution taken by the native authorities."

CHOLERA IN HONOLULU.

The transportation of the disease to the Hawaiian Islands was the next natural step, and it occurred in August, when the S. S. *Belgic* arrived at Honolulu the 9th of that month, having had three suspicious deaths in the steerage since her departure from Hongkong. It was afterwards learned that they had developed the characteristic symptoms of Asiatic cholera. It is probable, though not proven beyond doubt, that the *Belgic* brought the cholera to Honolulu. The disease spread among those removed to the quarantine barracks at Honolulu, was communicated to persons living contiguous, and thence to the native community among whom it was mainly prevalent. By the vigorous action of the local health authorities in enforcing strict sanitary measures among the ignorant islanders, the disease was successfully held in check. In all there were 88 cases, of the following nationality: Hawaiian, 76; half-breeds, 4; Americans, 3; Portuguese, 2; Chinese, 1; Japanese, 1. Of these 63 died, and the epidemic was ended by the 2d of October. As these islands are in frequent communication with San Francisco by a line of steamers it was apprehended that the Pacific Coast would be menaced thereby, and the measures taken by the service to prepare for it are detailed elsewhere.

In addition to the measures noted elsewhere, however, it is pertinent to add at this point that some apprehension was felt concerning immigrants and others arriving at the ports of Vancouver and Victoria, British Columbia, and seeking entrance thence into the United States. A large measure of protection to the Pacific Coast of this country is due to the care exercised at the foreign port under the Treasury regulations. British vessels are not subject to such regulation, and it was thought that baggage not subject to surveillance at the Oriental ports might reach the United States through the above-named British Columbian ports. Correspondence was therefore had with the chief quarantine officer of Canada, who asserted that the British lines of steamers had for some time refused to bring Japanese and Chinese immigrants through fear of detention at quarantine, and later assurances were given that, though some immigrants had arrived at Vancouver and Victoria all their baggage had been subjected to steam disinfection, and that this rule would remain in force during the epidemic. An officer of the Marine-Hospital Service was ordered to inspect the quarantine procedures at Victoria and Vancouver, British Columbia, with the assent of the chief quarantine officer of Canada. His report is found elsewhere.

CHOLERA IN SOUTH AMERICA.

On this continent cholera appeared at Buenos Ayres and Montevideo in the Republic of Argentina, during the first quarter of 1895. In the former city there were reported 225 cases with 134 deaths, and in the latter city 23 cases. Rosario and San Nicholas in the same country also had a few cases each during the same period. In Brazil ten cities and towns were infected or reported so during the six months beginning December, 1894, and ending May of this year. In Rio Janeiro, 195 deaths from the disease were reported, but the number of cases have not been enumerated with sufficient clearness to establish the record of virulence of the disease or the mortality rate. The epidemic in Brazil is now extinct, no cases having occurred since the beginning of June in Rio, and none in the valley of the Parahyba River, where it broke out, since the middle of July.

CHOLERA IN EUROPE, ASIA, AND AFRICA.

In Europe, the epidemic of cholera has been gradually declining during the past twelve months, and is still confined to Austria-Hungary (where it is almost extinguished), Russia, and Turkey. "Choleraic" diseases, about a score of cases in all, have been reported in France (at Paris and Cognac) as late as August and September, but they developed nothing of importance. In Egypt, a few cases were announced at Damietta. In Russia, including the several governments and districts, of which Volhynia and Podolia show the greatest infection, there have been 30,852 cases reported, of which 12,116 died, a mortality rate of about 39.3 per cent, which shows a decrease in the virulence of the epidemic as compared with last year's mortality. In Turkey, including the Red Sea littoral, 6,854 cases have been reported during the past twelve months, and 4,401 deaths.

In the remainder of Asia, the only point of interest relative to cholera is found in Calcutta, where it is endemic and generally constant throughout the year. There have been 1,832 deaths reported in that city from the close of my last report to the beginning of November. Bombay and Madras were comparatively free from it, but Singapore has an epidemic, reported to be on the increase, with a mortality of about 20 per week, confined however entirely to the natives, according to advices as late as July of this year.

ANTICHOLERAIC INOCULATION.

The experiments proposed by Dr. Haffkine, relative to a system of protective inoculation against Asiatic cholera, are well known to the medical world through his experiments, under the direction of his teacher, Pasteur, and his long and patient efforts to interest the government authorities of India in his work against the most dreaded of all pests. Failing in his endeavors to obtain official recognition, and especially financial aid for the prosecution of his self-imposed task, Dr. Haffkine's own meager means, supplemented by financial aid from the equally slender purse of the lamented Pasteur, enabled him to proceed to India, so strong was their faith in the merit of the antitoxin to protect. It will be remembered that Dr. Haffkine put into experimental practice at Katal Bagan Bustee his system of anticholeraic inoculation. The treatment consists of the injection into the circulation of an attenuated virus, and a second injection five days later of a similar but stronger virus. The former is intended to prepare the system for the second virus; and the treatment is intended to be purely preventive, and not at all remedial. The treatment does not become effective until eight days after the first and three days after the second inoculation, and it was expected to afford immunity against the disease for about a year. Such was his success at the above-mentioned place, that the attention of the health authorities of Calcutta was enlisted, and the civil government appropriated 7,500 rupees for the purpose of covering the actual expenses of further experiments. During the year which followed 4,397 persons were inoculated; and from the report recently submitted to the corporation of Calcutta by Dr. W. J. Simpson, the health officer of that city, the following examples of results in detail are quoted:

In 36 different and widely separated houses 521 persons were living. Of these 181 were inoculated. Cholera broke out in all. Among the 181 inoculated persons there were 4 cases, all fatal. Among the 340 uninoculated there were 45 cases and 39 deaths. And the 4 inoculated persons were stricken within five days after the first inoculation, so that the second inoculation could not be applied. Of those who received both inoculations not one took the disease. Some individual house records are also significant. In one house 4 out of 6 were inoculated; the 4 remained well, while 1 of the other 2 died. In another house 6 out of 8 were inoculated and remained immune, while 1 of the other 2 died. In a third house 4 out of 5 were inoculated (all lived together in one room); the 4 remained well, while the 1 died of cholera. In yet another house 6 out of 7 were inoculated and had no cholera, while the seventh died.

In all India, more than 40,000 persons have received both protective inoculations. They were all directly exposed to the contagion of cholera, but not a single case occurred among them, and not a single bad effect of the treatment was observed. The Indian Medical Congress and the Calcutta Medical Society, with only a portion of these results before them, unanimously approved the continuance of the experiments; and the health officer of Calcutta, in closing his report, urges upon the commissioners of the corporation the sanction of a grant of 10,000 rupees for the purpose of placing the work of inoculating upon a satisfactory financial basis. If the government of India rises to its public duty in this matter, for India is rightly regarded as the home of cholera, it will be leading the way to the introduction of a prophylactic measure which, either in its present or in a modified form, may be expected to effect an enormous reduction in the ravages of cholera not only among its own people, but among western populations, who suffer periodically from its spread beyond the Indian frontiers. It furnishes a regret to the medical profession to learn that Dr. Haffkine, almost triumphant over the worst of plagues, is so broken in health from overwork in India, that he has been obliged to return to France and leave to his assistants in India the work so nobly undertaken by himself.

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895. Compiled from reports received at the Marine-Hospital Bureau.

Places.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Camaran Quarantine Station	Mar. 23–Apr. 24		173	
	June 19–June 21	17	16	
Mecca	Apr. 22–May 6		213	
	June 9–June 14		17	
Jeddah	May 1		28	
Taif	June 19–June 21		24	
Argentina:				
Buenos Ayres	To Jan. 10	125	59	
	Jan. 1–Jan. 31	87	27	
	Feb. 1–Feb. 28		45	
	Mar. 13	8		
	Mar. 21	5	3	
Montevideo	Mar. 13		3	
	Mar. 16	16		
	Mar. 18	5		
	Mar. 21	2	1	
Rosario	do	8	2	
San Nicholas	Mar. 29	7	3	
Asia Minor:				
Tarsus	June 1			Cholera reported.
Austria-Hungary:				
Galicia	Nov. 5–Feb. 17	1,479	773	
	Aug. 23–Oct. 28	238	146	
Belgium	Nov. 18–Nov. 24	3		
Brazil	Dec. 11–Feb. 4			Do.*
Alegre	Apr. 3	1		
Bahia	do			Do.
Cachoeira	Feb. 24–Mar. 3	40	21	
Desergano	Mar. 20	11		
Itapemerim	do	50	2	
Porto Novo	Apr. 3			Do
Rio de Janeiro	Dec. 1–Dec. 31	6	5	
	Jan. 1–Jan. 31		45	
	Feb. 1–Feb. 28		105	
	Mar. 1–Mar. 28	93	31	
	Mar. 29–Apr. 20		8	
	May 11–May 18		1	
Santo Antonio do Muriatre	Apr. 3	18	15	
Volta Redondo	do	1		
Ceylon:				
Colombo	Jan. 26–Feb. 2	8	8	
China:				
Chefoo	Aug. 14			Do.
Foochow	Apr. 30			Do.
Hongkong	June 15–June 22		1	
	July 27–Aug. 3		2	
	Aug. 10–Aug. 24		7	
Tien-Tsin	Aug. 14			Do.
Egypt: †				
Bousrate	Oct. 20–Nov. 3	85	71	
Damietta	Oct. 15	15	3	

* Towns Cachoeira, Cruzeiro; Campo Bello, Barra; Reyende Quelens, and Volta Rodondo.

† The exact number of cholera deaths and cases throughout Egypt during the outbreak now existing (November 1, 1895,) is not known. From October 11 to November 1 there have been approximately between 300 and 400 cases and about 200 deaths.

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895, etc.—Con.

Places.	Date.	Cases.	Deaths.	Remarks.	
Egypt—Continued.					
Damietta	Oct. 22–Nov. 4	41	20		
El Kordi	Oct. 22–Nov. 3	38	46		
Gheit El Nassura	Oct. 17–Oct. 18	2			
Manzaleh	Oct. 15–Nov. 3		163		
Matarieh	Oct. 25–Nov. 3		81		
Nassaimia	Oct. 20–Oct. 22	8	5		
Ohmadieh	Oct. 25–Nov. 3		81		
France:					
Cognac	Aug. 17–Aug. 24		1		
	Aug. 31–Sept. 6	1	1		
	Sept. 29–Oct. 5		1		
Paris	Aug. 11–Sept. 7	7		Choleraic affections.	
	Sept. 15–Sept. 21	6		Do.	
	Sept. 29–Oct. 5	3			
	Oct. 13–Oct. 26	2		Do.	
Roubaix	Sept. 1–Sept. 30		33		
	Oct. 30–Oct. 31		18		
Germany	Nov. 1–Dec. 31	26	13		
Holland	Dec. 8		7		
Hawaiian Islands:					
Honolulu	Aug. 18–Oct. 3	88	63	Do.	
India:					
Bombay	Nov. 1–Jan. 8		6		
	Mar. 5–Mar. 12		1		
	Apr. 23–May 21		7		
	May 28–June 18		2		
	June 26–July 9		2		
	July 27–Aug. 2		1	Do.	
	Aug. 6–Aug. 20		6		
	Aug. 27–Sept. 10		4		
	Sept. 17–Oct. 29		10		
Calcutta	Nov. 3–Feb. 13		469		
	Mar. 2–Mar. 20		303		
	Mar. 31–Nov. 1		1,065		
Madras	Nov. 1–Feb. 22		69		
	Mar. 2–Mar. 8		2		
	Mar. 16–Mar. 30		2		
	May 11–May 17		1		
	June 22–July 5		3		
	July 20–July 26		1		
	Aug. 3–Aug. 23		8		
	Aug. 31–Sept. 6		6		
	Sept. 20–Oct. 4		6		
Singapore	June 21–June 26	27	13		
	June 1–June 30		80		
	July 9–July 29	100	75		
	Aug. 12–Aug. 19	17	8		
	Aug. 19–Sept. 2	22	13		
	Sept. 13–Sept. 17		2		
				From outbreak to Sept. 12.	
				Cases.	Deaths.
Japan:					
Akita Ken	Sept. 13–Sept. 19	2			
	Sept. 20–Oct. 10	9	9		
	Oct. 11–Oct. 24	83	50		
Tokyo Fu	Sept. 6–Sept. 19	412	309	2,008	1,301
	Sept. 20–Oct. 10	492	346		
	Oct. 11–Oct. 24	533	390		
Kioto Fu	Sept. 6–Sept. 19	184	171	1,689	1,309
	Sept. 20–Oct. 10	65	74		
	Oct. 11–Oct. 24	34	14		
Osaka Fu	Sept. 6–Sept. 19	483	559	6,505	4,618
	Sept. 20–Oct. 10	389	369		
	Oct. 11–Oct. 24	69	75		
Kanagawa Ken	Sept. 6–Sept. 19	79	77	782	475
	Sept. 20–Oct. 10	41	29		
	Oct. 11–Oct. 24	33	33		
Hiogo Ken	Sept. 6–Sept. 19	308	248	3,430	2,523
	Sept. 20–Oct. 10	156	191		
	Oct. 11–Oct. 24	34	29		
Nagasaki Ken	Sept. 6–Sept. 19	144	115	1,610	1,103
	Sept. 20–Oct. 10	55	42		
	Oct. 11–Oct. 24	12	10		
Niligata Ken	Sept. 6–Sept. 19	22	14	89	52
	Sept. 20–Oct. 10	19	10		
	Oct. 11–Oct. 24	35	23		

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895, etc.—Con.

Places.	Date.	Cases.	Deaths.	From outbreak to Sept. 12.	
				Cases.	Deaths.
Japan—Continued.					
Saitama Ken	Sept. 6–Sept. 19	52	36	212	146
	Sept. 20–Oct. 10	27	26		
	Oct. 11–Oct. 24	12	9		
Chiba Ken	Sept. 6–Sept. 19	86	60	615	427
	Sept. 20–Oct. 10	62	48		
	Oct. 11–Oct. 24	29	25		
Ibaraki Ken	Sept. 6–Sept. 19	209	138	866	565
	Sept. 20–Oct. 10	65	48		
	Oct. 11–Oct. 24	11	12		
Gumba Ken	Sept. 6–Sept. 19	3	1	23	9
	Sept. 20–Oct. 10	9	7		
	Oct. 11–Oct. 24	5	2		
Tochigi Ken	Sept. 6–Sept. 19	66	38	245	154
	Sept. 20–Oct. 10	43	38		
	Oct. 11–Oct. 24	7	5		
Nara Ken	Sept. 6–Sept. 19	104	86	654	467
	Sept. 20–Oct. 10	53	48		
	Oct. 11–Oct. 24	8	8		
Miya Ken	Sept. 6–Sept. 19	109	14	88	17
	Sept. 20–Oct. 10	121	81		
	Oct. 11–Oct. 24	52	67		
Aichi Ken	Sept. 6–Sept. 19	145	115	288	191
	Sept. 20–Oct. 10	106	76		
	Oct. 11–Oct. 24	88	55		
Shidzuoka Ken	Sept. 6–Sept. 19	114	64	337	203
	Sept. 20–Oct. 10	30	24		
	Oct. 11–Oct. 24	21	18		
Yamanashi Ken	Sept. 6–Sept. 19	39	12	50	26
	Sept. 20–Oct. 10	38	22		
	Oct. 11–Oct. 24	8	6		
Shiga Ken	Sept. 6–Sept. 19	15	17	246	190
	Sept. 20–Oct. 10	11	8		
	Oct. 11–Oct. 24	5	4		
Gifu Ken	Sept. 6–Sept. 19	33	13	69	38
	Sept. 20–Oct. 10	28	13		
	Oct. 11–Oct. 24	21	13		
Nangano Ken	Sept. 6–Sept. 19	0	0	17	10
	Sept. 20–Oct. 10	22	18		
	Oct. 11–Oct. 24	5	4		
Miyagi Ken	Sept. 6–Sept. 19	904	597	1, 470	869
	Sept. 20–Oct. 10	295	293		
	Oct. 11–Oct. 24	74	55		
Fukushima Ken	Sept. 6–Sept. 19	152	101	335	187
	Sept. 20–Oct. 10	133	89		
	Oct. 11–Oct. 24	34	21		
Iwate Ken	Sept. 6–Sept. 19	0	0	5	3
	Sept. 20–Oct. 10	26	14		
	Oct. 11–Oct. 24	65	22		
Awomori Ken	Sept. 6–Sept. 19	18	3	13	7
	Sept. 20–Oct. 10	2	1		
	Oct. 11–Oct. 24	0	0		
Yamagata Ken	Sept. 6–Sept. 19	378	211	525	280
	Sept. 20–Oct. 10	307	213		
	Oct. 11–Oct. 24	59	64		
Fukui Ken	Sept. 6–Sept. 19	121	76	182	127
	Sept. 20–Oct. 10	114	96		
	Oct. 11–Oct. 24	65	60		
Ishikawa Ken	Sept. 6–Sept. 19	63	34	72	37
	Sept. 20–Oct. 10	214	127		
	Oct. 11–Oct. 24	215	173		
Toyama Ken	Sept. 6–Sept. 19	912	647	607	384
	Sept. 20–Oct. 10	1, 547	1, 118		
	Oct. 11–Oct. 24	435	349		
Tottori Ken	Sept. 6–Sept. 19	214	131	1, 014	659
	Sept. 20–Oct. 10	67	64		
	Oct. 11–Oct. 24	30	12		
Shimane Ken	Sept. 6–Sept. 19	150	110	634	406
	Sept. 20–Oct. 10	139	94		
	Oct. 11–Oct. 24	26	27		
Okayama Ken	Sept. 6–Sept. 19	319	333	2, 699	1, 812
	Sept. 20–Oct. 10	96	72		
	Oct. 11–Oct. 24	25	18		
Hiroshima Ken	Sept. 6–Sept. 19	355	280	3, 624	2, 664
	Sept. 20–Oct. 10	205	194		
	Oct. 11–Oct. 24	47	35		
Yamaguchi Ken	Sept. 6–Sept. 19	145	100	1, 993	1, 385
	Sept. 20–Oct. 10	58	43		
	Oct. 11–Oct. 24	9	8		

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895, etc.—Con.

Places.	Date.	Cases.	Deaths.	From outbreak to Sept. 12.	
				Cases.	Deaths.
Japan—Continued.					
Wakayama Ken	Sept. 6–Sept. 19	56	47	461	345
	Sept. 20–Oct. 10	96	69		
	Oct. 11–Oct. 24	24	19		
Tokushima Ken	Sept. 6–Sept. 19	47	41	378	196
	Sept. 20–Oct. 10	17	13		
	Oct. 11–Oct. 24	14	9		
Kagawa Ken	Sept. 6–Sept. 19	429	318	2,029	1,178
	Sept. 20–Oct. 10	135	108		
	Oct. 11–Oct. 24	19	21		
Yehime Ken	Sept. 6–Sept. 19	241	153	1,226	816
	Sept. 20–Oct. 10	107	85		
	Oct. 11–Oct. 24	25	19		
Kochi Ken	Sept. 6–Sept. 19	176	141	730	501
	Sept. 20–Oct. 10	106	79		
	Oct. 11–Oct. 24	29	31		
Fukuoka Ken	Sept. 6–Sept. 19	192	180	1,877	1,143
	Sept. 20–Oct. 10	88	69		
	Oct. 11–Oct. 24	38	23		
Oita Ken	Sept. 6–Sept. 19	93	62	755	450
	Sept. 20–Oct. 10	55	45		
	Oct. 11–Oct. 24	11	5		
Saga Ken	Sept. 6–Sept. 19	54	43	250	169
	Sept. 20–Oct. 10	27	16		
	Oct. 11–Oct. 24	0	0		
Kumamoto Ken	Sept. 6–Sept. 19	127	90	501	280
	Sept. 20–Oct. 10	108	75		
	Oct. 11–Oct. 24	47	23		
Miyasaki Ken	Sept. 6–Sept. 19	143	72	171	101
	Sept. 20–Oct. 10	101	43		
	Oct. 11–Oct, 24	16	13		
Kagoshima Ken	Sept. 6–Sept. 19	82	44	277	155
	Sept. 20–Oct. 10	189	129		
	Oct. 11–Oct. 24	37	29		
Okinawa Ken	Sept. 6–Sept. 19	3	1	14	5
	Sept. 20–Oct. 3	24	18		
	Oct. 11–Oct. 24	17	9		
Hokkaido Ken	Sept. 6–Sept. 19	0	0	13	2
	Sept. 20–Oct. 10	34	6		
	Oct. 11–Oct. 24	6	2		
Niijima quarantine	Sept. 6–Sept. 19	7	3	538	274
	Sept. 20–Oct. 24	7	7		
Hikojima quarantine	Sept. 6–Sept. 19	3	0	301	194
	Sept. 20–Oct. 3	4	0		
	Oct. 11–Oct. 24		1		
Sakurajima quarantine	Sept. 6–Sept. 19	0	0	197	60
	Sept. 20–Oct. 24	0	0		
North Formosa[1]	July 2–Aug. 10	150	56		
	Oct. 3–Oct. 10	1,279			
				Remarks.	
Korea:					
Chemulpo	July 13			Cholera reported.	
Weijii	June 30			Do.	
Morocco:					
Tangier	Sept. 1–Sept. 30	800	600		
	Oct. 1–Oct. 31	1,000	800		
Tetuan	Sept. 28–Oct. 17	2,761	1,255		
	Oct. 18–Oct. 31		84		
Russia (governments):					
Archangel	Nov. 1–Nov. 3	4	3		
Baku	Nov. 4–Dec. 8	9	8		
Bessarabia	Nov. 11–Jan. 12	135	62		
Dubno	Aug. 11–Aug. 17			Do.	
Ekaterinoslav	Nov. 11–Dec. 15	35	26		
Grodno	Nov. 25–Dec. 8	61	35		
Kremenez	Aug. 11–Aug. 17			Do.	
Kurland	Nov. 11–Dec. 29	161	71		
Kiev	Dec. 23–Feb. 2	44	21		
	Sept. 8–Sept. 21	28	10		
	Sept. 19–Sept. 26	14	18		
	Sept. 28–Oct. 12	59	37		
Kursk	Dec. 2–Jan. 19	9	6		
Kovno	Nov. 11–Dec. 29	98	53		
	Jan. 20–Jan. 21	1	1		
Lomza	Nov. 18–Dec. 2	11	8		

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[1] In all Japan during the week ended October 31, 1895, there were 839 cases and 725 deaths.

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895, etc.—Con.

Places.	Date.	Cases.	Deaths.	Remarks.
Russia (governments)—Continued.				
Lublin	Nov. 3–Dec. 8	45	14	
Minsk	Nov. 16–Jan. 12	54	20	
Mohilev	Nov. 25–Dec. 22	52	16	
Nowogrodwalynski	Aug. 11–Aug. 17	......	......	Cholera reported.
Ostrog	Aug. 11–Aug. 17	......	......	Do.
Olonetz	Nov. 18–Nov. 24	7	4	
Petrikov	Nov. 25–Dec. 22	74	37	
	Jan. 4–Jan. 19	6	1	
Podolia	Nov. 11–Apr. 13	2,102	907	
	Aug. 21–Aug. 31	101	45	
	Sept. 1–Sept. 14	51	19	
Podolsk	Mar. 24–Apr. 27	28	17	
Primorskajabezirk (Siberia)	July 30–Sept. 17	82	58	
Pensa	Nov. 11–Nov. 24	20	12	
Perm	Nov. 4–Dec. 8	39	22	
Pskov	Nov. 16–Dec. 7	4	2	
Radom	Jan. 1–Jan. 26	20	9	
Riasan	Nov. 4–Jan. 5	52	33	
Saratov	Nov. 11–Jan. 12	29	20	
Saslaw	Aug. 11–Aug. 17	......	......	Do.
St. Petersburg	Oct. 10–Oct. 31	48	24	
Suwalki	Jan. 18–Jan. 26	25	10	
Starokonstantinow	Aug. 11–Aug. 17	......	......	Do.
Taurien	Nov. 4–Jan. 26	96	58	
Tchernigov	Nov. 4–Feb. 16	85	28	
Tambov	Nov. 18–Dec. 8	42	16	
Tiflis	Nov. 4–Dec. 1	35	11	
Volhynia	Nov. 4–Apr. 30	586	230	
	May 26–July 6	229	65	
	July 6–July 20	214	85	
	July 21–Aug. 3	688	238	
	Aug. 4–Aug. 10	1,004	322	
	Aug. 11–Aug. 17	2,025	718	
	Aug. 18–Aug. 24	2,497	944	
	Sept. 1–Sept. 14	7,791	3,085	
	Sept. 15–Sept. 28	4,269	1,701	
	Sept. 29–Oct. 12	2,901	1,190	
Warsaw	Aug. 26	1	......	
Wilna	Nov. 11–Dec. 11	44	18	
Witebst	Nov. 18–Dec. 29	55	32	
	Jan. 6–Jan. 12	5	2	
Yaroslav	Nov. 11–Dec. 22	28	6	
Districts of Ostrog, Kremenez, Saslaw, Starokonstantinow, Nowogrodwalynski, Dubno, Rowno, Luzk, Schitomir, and Komel.	Sept. 15–Sept. 21	1,389	550	
	Sept. 25–Sept. 31	3,352	1,190	
Districts of Proskurow and Letitschew.	Sept. 1–Sept. 14	51	19	
Turkey:				
Adalia	Dec. 11–Feb. 18	230	127	
	Oct. 2–Oct. 3	2	1	
Adana (vilayet)	July 23–Aug. 10	105	49	
	Aug. 12–Aug. 27	35	19	
Adana	May 25–June 1	50	30	
	July 14–July 28	27	16	
Aleppo (vilayet)	July 24–Aug. 12	98	57	
	Aug. 6–Aug. 20	191	98	
Aleppo	Aug. 5	......	......	Do.
	June 1–June 15	550	300	
	June 15–July 24	684	326	
	July 22–Aug. 21	371	158	
	Aug. 21–Sept. 4	8	3	
	Sept. 1–Sept. 13	15	8	
	Sept. 25–Sept. 28	10	6	
Alan-Sinar	June 30	12	......	
Angora (vilayet)	July 11–July 23	32	17	
Bitlis	Jan. 3	......	......	Do.
Broussa	Aug. 26–Sept. 1	84	57	
Broussa (vilayet)	Aug. 24–Aug. 30	32	16	
Bulanik	June 21–June 22	5	5	
	July 1–July 21	51	35	
Constantinople	Nov. 1–May 6	391	216	
	June 20–Aug. 8	1	1	
	Sept. 8–Sept. 26	24	14	
	Oct. 7	1	......	
Diabekar	Aug. 5–Aug. 12	83	66	
	Aug. 12–Sept. 1	261	300	
	Sept. 1–Sept. 29	47	35	
Djabul	June 26–July 1	15	7	

Table showing the prevalence of cholera November 1, 1894, to November 1, 1895, etc.—Con.

Places.	Date.	Cases.	Deaths.	Remarks.
Turkey—Continued.				
Gok-Sun	July 8		8	
Hadji-Bil	July 7	3	3	
Hadjil	July 17	1	1	
Hamah	July 22–Aug. 3	20	5	
Hatschin	June 10–June 18	9	6	
	July 1–July 25	22	10	
Homs	Aug. 7–Aug. 10		1	
Hudavendkjar (vilayet)	July 14–Aug. 12	67	86	
	Aug. 18–Aug. 25	182	56	
	Sept. 1–Sept. 14	199	35	
	Sept. 14–Sept. 29	15	7	
	Oct. 7	1		
Husu Mansur	July 8–Aug. 10	303	138	
Jumurtalık	June 18–June 20	1	1	
	July 10–July 27	33	19	
Karahissen	July 7–July 11	11	7	
Kara-Isdali	June 17–June 24	17	4	
Karatasch	June 17–June 29	89	44	
	June 30	23	27	
	July 13–July 24	11	11	
Karszulcadria	July 9	10	2	
Koñia (vilayet)	July 21–Aug. 12	32	16	
Marash	June 10–June 30	27	17	
	June 30–July 20	33	18	
Mersina	May 25–June 1	3	1	
	June 1–June 15	2	2	
	June 15–July 16	410	235	
	July 14–July 27	21	15	
	Aug. 5			Cholera reported.
Mesis	June 17–June 29	27	8	
	June 29–July 11	17	8	
Mossoul	Sept. 20–Sept. 24	1	2	
Padzardjik	July 8	7	7	
Pera	Feb. 21			Do.
Pajast	June 16–June 29	17	6	
	July 1–July 9	26	24	
	July 13–July 25	46	12	
Rania (vilayet)	July 21–Aug. 12	32	16	
Sis	June 10–June 29	87	58	
	July 1–July 27	33	17	
Siverek	Jan. 8–Jan. 21	48	31	
Tarsus	May 18–June 1	470	315	
	June 1–June 15	750	530	
	June 15–July 16	293	143	
	Aug. 5			Do.
Yah Yali (vilayet)	July 21–July 27	20	9	

SMALLPOX.

SMALLPOX IN THE UNITED STATES.

During the twelve months from November 1, 1894, to November 1, 1895, smallpox has appeared in the United States, as reported to this Bureau, in 30 States, covering 170 county and municipal districts. The number of cases reported were 3,347, of which number 633 died. A portion of these, namely, 178 cases, with 55 deaths, were imported into Texas from Mexico by a colony of negroes returning from Mexico in a destitute condition. They were placed in a quarantine detention camp at Eagle Pass, Tex., under the supervision of medical officers of this Service, details of which are elsewhere given. In several places, notably Hot Springs, Ark., with 192 cases; New Orleans, La., with 124 cases; Chicago, Ill., with 432 cases; Philadelphia, Pa., with 382 cases; Cincinnati, Ohio, with 116 cases; St. Louis, Mo., with 218 cases; Detroit, Mich., with 104 cases; Milwaukee, Wis., with 422 cases, and Staunton, Augusta County, Va., with 106 cases, this disease has reached the importance of a localized epidemic, requiring vigorous measures on the part of the health authorities to keep it under control. A survey of the geographical distribution of smallpox in the United States the past year, as reported to this Bureau, shows a well-marked concentration of the disease in the central portions of this country, particularly along the great waterways.

Ten States had two-thirds of the reported cases, viz:

Wisconsin	581
Michigan	183
Illinois	475
Missouri	239
Arkansas	260
Louisiana	127
Indiana	37
Kentucky	142
Tennessee	66
West Virginia	61
Total	2,171

And it is to be observed that, with the exception of Wisconsin and Michigan, all of these States are drained by great rivers, filled with craft engaged in interstate commerce, over which the States have no control; and this observation can be verified, notably in the case of the rivers which are the tributaries of the Mississippi River, extending from Pittsburg on the east to Hot Springs on the west, and from St. Louis, north, to New Orleans on the south. Probably these cases were carried from point to point along these rivers by the crews of vessels engaged in the river traffic. With the exception of New Hampshire, which had 19 cases, Connecticut 3 cases, Vermont 2 cases, and Rhode Island 1 case, New England was practically free from the disease, and the Atlantic Coast generally was uninfected from Delaware to Florida. In all these places where the disease appeared, the management of it was vested in the local health authorities, and the only occasions on which the machinery of this Service was called into play as a part of the public health organization of the country were in Texas, at Eagle Pass, before mentioned, at Staunton, Va., and in connection with the vaccination of seamen on the Ohio and Mississippi rivers. Officers of this Service at St. Louis, New Orleans, Louisville, Cairo, and Pittsburg were furnished with vaccine virus and accorded special assistance in providing free vaccination for the seamen employed on vessels engaged in traffic on those rivers. The medical officer in command at New Orleans began an inspection and vaccination in May and continued it through June, making the total number of vaccinations 2,576, by the aid of two sanitary inspectors. The medical officer in command at St. Louis reports the inspection of 52 vessels and the vaccination of 505 seamen, the refusal of 46 to accept vaccination, and the inspection of 1,625 seamen, of whom 923 had been successfully vaccinated previously, and 151 who had suffered from variola.

The medical officer in command at Pittsburg reports that he and his assistant boarded 72 steamers, inspected 462 boatmen, of which number 251 were passed, 178 vaccinated, and 38 refused vaccination. "In the office of the Marine-Hospital Service there were inspected 723, of these 44 were original vaccinations, 75 passed, and the others revaccinations."

SMALLPOX IN STAUNTON, VA.

The epidemic in Staunton, Va., was investigated by a medical officer of this Service specially detailed, and his cooperation in the work of controlling the epidemic was tendered to the local authorities. The origin of the epidemic was traced to a negro fugitive from justice coming to Staunton from Cincinnati, Ohio, who communicated the disease to the neighborhood negroes in the squalid portion of the town, whence it spread with a total of 106 cases developed.

Following is the request from the city authorities of Staunton, the reply of the Bureau, and the report of the medical officer detailed for the purpose named:

[Telegram.]

STAUNTON, VA., *May 17, 1895.*

At a meeting of the city council this morning the following resolutions were unanimously adopted:

Resolved, That in accordance with the wishes of the citizens of Staunton as expressed in a petition this day presented to the council, the city physician and board of health of Staunton are hereby requested to invite one of the Government experts to visit Staunton at once and make diagnosis of the disease prevailing in a section of Staunton, and being treated as smallpox.

In accordance with the above resolution, we, the board of health of the city of Staunton, Va., request that an expert in the matter of diagnosis of smallpox be sent to our city for the purpose of settling the question as to whether smallpox exists here.

H. H. HENKEL,
J. B. CATLETT,
Board of Health.
J. B. CATLETT,
City Physician.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C

[Telegram.]

WASHINGTON, D. C., *May 17, 1895.*

P. A. Surg. M. J. Rosenau, Marine-Hospital Service, leaves for Staunton 11 to-night. Has had large experience in smallpox hospitals in Antwerp during epidemic 1892 and 1893, and in detecting the disease among immigrants embarking for the United States.

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Dr. J. B. CATLETT,
City Physician, Staunton, Va.

Report on the smallpox outbreak at Staunton, Va.

WASHINGTON, D. C., *May 22, 1895.*

SIR: I have the honor to report the following observations in compliance with instructions to proceed to Staunton, Va., and decide upon the character of the epidemic disease prevailing in that locality.

The disease is smallpox. The sudden onset with vomiting, the appearance of shotted papules on the fourth day, turning to umbilicated vesicles and finally pustules, and the characteristic pitting of some cases left no doubt as to the diagnosis. The epidemic is moderate in severity considering the large number of unvaccinated subjects the disease has found, the death rate to date being only 6.7 per cent—a total of 59 cases and 4 deaths.

The origin of the outbreak is traced to a negro, Henry Johnson, who came to Staunton from Cincinnati about the middle of April.

Johnson himself is a fugitive from justice, and can not be found, but his traveling companion gave me this account. They went together to Cincinnati in March to join the circus. While there Johnson lived in Griffin street, near the levee, and near a house quarantined with smallpox. He left Cincinnati about April 15 for Hinton, W. Va., where he stayed a few days before proceeding to Staunton. The day he left Hinton his face was covered with an eruption.

At Staunton he lived with the poorest of the negro colony in a squalid portion of the town. Ten days after Johnson's arrival other cases appeared in the neighborhood. The disease spread until 52 cases broke out within an eighth of a mile of where Johnson lived.

This infected district is a small triangular area, in a hollow, at the western end of town. It contains about thirty wooden hovels in which live some 250 negroes.

There are four other foci, two in the town proper and two in the county, all clearly traceable to the infected district.

Of the total of 59 cases only 3 have occurred among white people, and those 3 in a poverty-stricken family of 4 living in the same infected triangle. Vigorous measures have been instituted, which, if energetically carried out, will soon put an end to the epidemic.

The board of supervisors passed an ordinance making vaccination compulsory in the entire county, and directing the city physician, Dr. Catlett, to put the measure into effect.

The city was divided into ten districts, and a physician given each district. with instructions to make a house-to-house inspection and vaccinate generally.

Land was purchased just inside the city limits and a hospital and detention camp started for the sick and suspects, whither they will be moved as soon as possible.

In the meantime each infected focus is guarded and carefully quarantined.

In concluding this report I desire to cordially thank his honor, A. H. Fultz, mayor of the city, Dr. J. B. Catlett, city physician, and Dr. H. H. Henkel, of the board of health, for many courtesies shown me during my short visit.

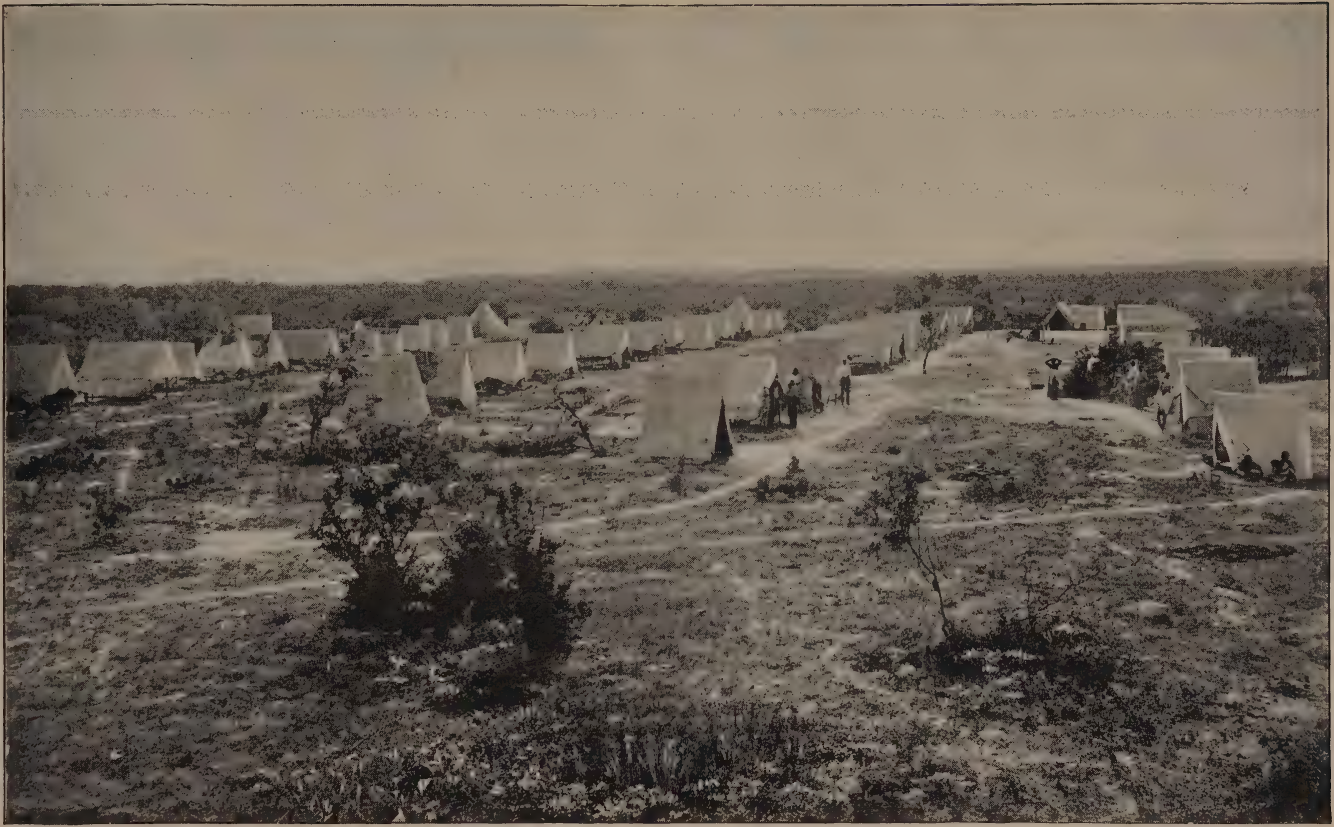
Respectfully, yours,

M. J. ROSENAU,
Passed Assistant Surgeon, Marine-Hospital Service.

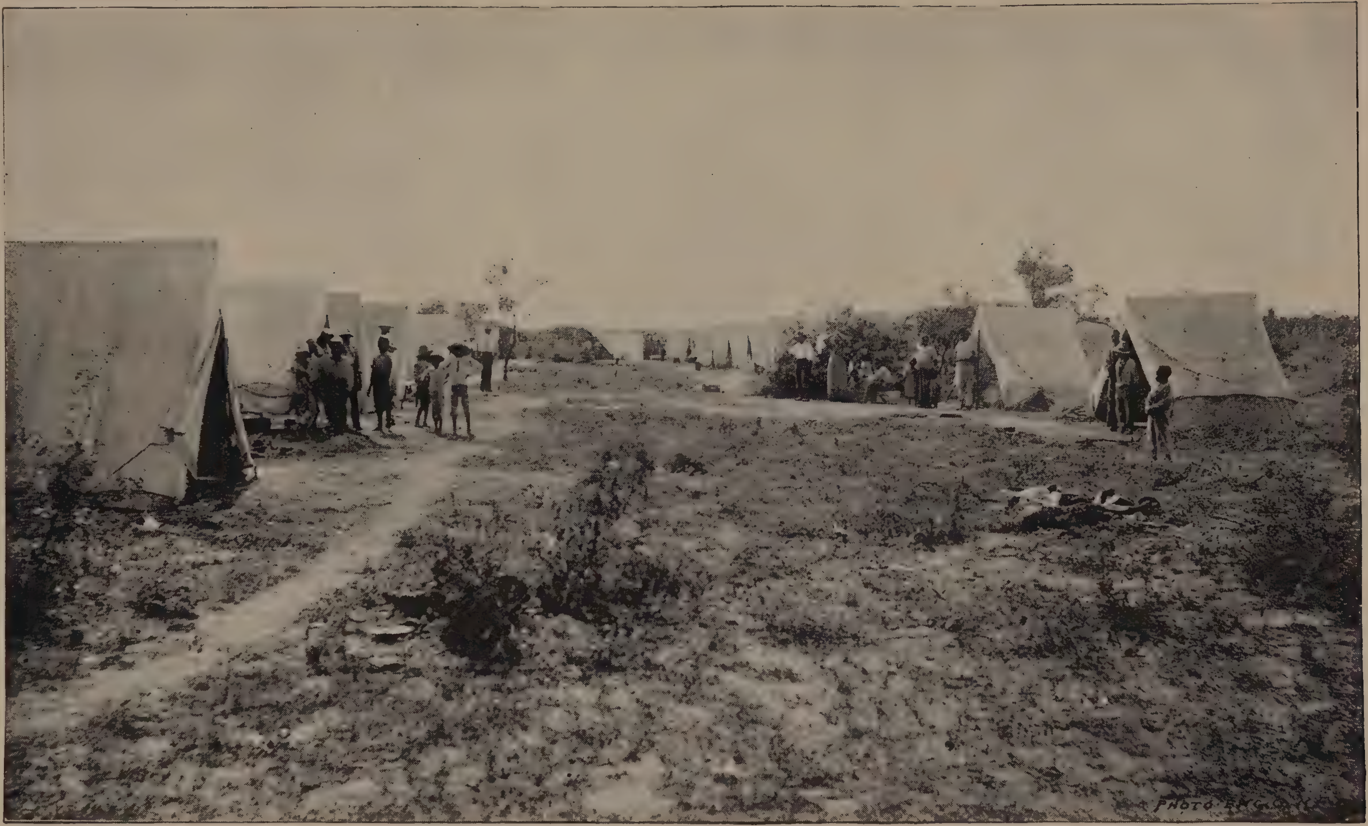
SMALLPOX AT EAGLE PASS, TEX., AMONG NEGRO COLONISTS RETURNING FROM MEXICO.

July 30, 1895, word was received from the collector of customs at Eagle Pass, Tex., stating that a number of destitute negroes, returning colonists from Mexico, had arrived within the past few days, with a number of cases of smallpox among them; that the State authorities had them in quarantine; that more infected negroes were expected, and asking instructions. I replied, quoting the regulations and requesting to be kept informed. I wired also the State health officer of Texas, asking what measures were being taken, and received the same day a reply that the sick colonists were all isolated and receiving the attention that humanity and sanitation required. The following day, July 31, another dispatch was received from the collector reporting additional arrivals, and stating there was danger of the negroes stampeding and escaping to the interior. Passed Assistant Surgeon Magruder, at Galveston, was ordered to proceed to Eagle Pass, without delay, to offer aid to the authorities, to wire a report on the situation, and to insist on the enforcement of the regulations. July 31 I wired the State health officer again, conveying the substance of the telegram received from the collector of customs at Eagle Pass, and informing him that any assistance required would be rendered. In reply to this I received a letter on August 4, that the State could and would use all necessary precautions to protect the people, but asking assistance. The State health officer himself visited Eagle Pass, and all possible assistance was rendered him and his subordinates by authorizing certain purchases to be made through the collector of customs, and by the professional advice of Passed Assistant Surgeon Magruder. It soon became evident that the State health authorities were unable to meet the demands of the situation, and after representation from myself of the precautions that must necessarily be enforced, and upon my suggestion, the State health officer turned over the whole matter to the Marine-Hospital Service. The Bureau assumed charge August 11, and supplies, in addition to those which had been furnished through the collector of customs, were imme-

CAMP JENNER PICKET LINE—POST No. 9. (VIEW 1.)



CAMP JENNER--SMALLPOX HOSPITAL. (VIEW 2.)



CAMP JENNER—SMALLPOX HOSPITAL, AVENUE D. (VIEW 3.)

diately authorized to be purchased by Passed Assistant Surgeon Magruder, who was placed in command. Two medical assistants and a hospital steward were ordered to report to him. Tents and camp equipage were furnished, nurses and guards employed, and all sanitary measures taken both to prevent the further spread of the disease among the colonists and to prevent its extension beyond the quarantine lines which were thrown around the camp. Four hundred and eleven refugees were received in the camp, of which number 178 had smallpox, there being 51 deaths from this disease. The camp was closed October 21, the disease having been confined entirely within the established limits. The expenses, paid from the epidemic fund, amounted to $14,123.49. The Bureau is indebted to the collector of customs, W. A. Fitch, esq., for his prompt information and active and intelligent cooperation. Further details are enumerated in the following report:

REPORT ON THE ESTABLISHMENT AND ADMINISTRATION OF CAMP JENNER, EAGLE PASS, TEX.

CAMP JENNER, EAGLE PASS, TEX.,
October 25, 1895.

SIR: In obedience to your order of September 30, I have the honor to make the following report on the establishment and administration of Camp Jenner, and will preface my report by briefly stating the causes which necessitated its establishment.

During the months of January and February of the current year, a large number of negroes (about 1,000) from Alabama and Georgia were induced by agents of the Tlahuialila Company, a syndicate owning large plantations about 30 miles east of Mapimi, in the State of Durango, Mexico, to settle upon their lands for the purpose of growing cotton and corn. After a few months of work the negroes, claiming that they were insufficiently fed, that their contracts had been violated, and furthermore discouraged by the appearance among them of a disease which was called "cotton-pox" by their employers and their physician, began to leave the colony in large numbers. Traveling slowly in crowded freight cars, subjected to numerous and vexatious delays, insufficiently supplied with provisions, without money, and in many instances suffering from small-pox in its different stages, they finally reached the frontier in a condition truly pitiable. About 300 of them arrived at Eagle Pass from July 23 to July 30, and while awaiting the completion of arrangements by the State Department for furnishing them transportation to their homes, the prevalence of small-pox among them was detected by the State quarantine officers, and the entire number was placed in quarantine.

At this juncture an inspection was ordered by you, and the condition of affairs (as conducted by the State quarantine officers) can be best understood by giving the following extracts from the report of your inspector:

EAGLE PASS, TEX., *August 3, 1895.*

SIR: * * * The refugee camp is well located, 3 miles from the city on the north shore of the Rio Grande, in the angle formed by the junction of Elm Creek with this stream, and separated from the city by Elm Creek, which at this point is about 30 yards wide and 4 feet deep.

The camp equipment consists solely of two small tents and a few dozen cooking utensils. Practically no attempt is made toward nursing or furnishing medical treatment to the sick, the management of each case being left to the individual fancy of the friends or relatives of the patient, and the burning of rags and the drinking of "yarb tea," and other forms of negro medication were in progress at the time of my visit. The rations furnished by State authorities is limited to bread, bacon, and coffee, and is the only food furnished to sick and well.

This entire country is covered with a low growth of stunted mesquite which furnishes but little shade and effectually keeps out any breeze that may be blowing; on the ground under these bushes the sick lie on old rags, blankets, and quilts, and as the shadows move they painfully change their position in a vain attempt to find some relief from the burning sun.

Only four guards are employed (no other attendants or nurses), and no organized attempt is made to restrict refugees to any definite locality. Consequently they wander in every direction in search of shade. * * * The destitute condition of the negroes, their ignorance of the country, and the difficulty in crossing the creek will prevent attempts at desertion to some extent, but as soon as deaths increase it is more than likely that the survivors will become frightened and many will desert, if, in fact, they do not stampede in a body. * * *

The small-pox camp is about 100 yards from the refuge camp, and whatever attempts are made to isolate the two are certainly ineffectual, for at the time of my visit a dozen or more from the latter camp were found visiting their sick friends, and were ordered away by Dr. Evans. The register of the refugees is not yet completed, and consequently there can be no roll call, or means of detecting desertions, and two parties, one of six, and one of eleven, said to be refugees, were seen on the railroad track above camp going north a few days ago, and the smaller party was again reported as having passed through Spofford, 48 miles north of this city, on yesterday. About 100 have been vaccinated, and the remainder will be similarly protected upon the receipt of additional supply of vaccine points, which are expected to-morrow.

It is impossible to say how many refugees carrying infection are at large, but if this town escapes it will be due solely to the protection afforded by vaccination. The frequent small-pox scares occurring across the river cause the citizens to keep themselves well protected by this means at all times.

Very respectfully,

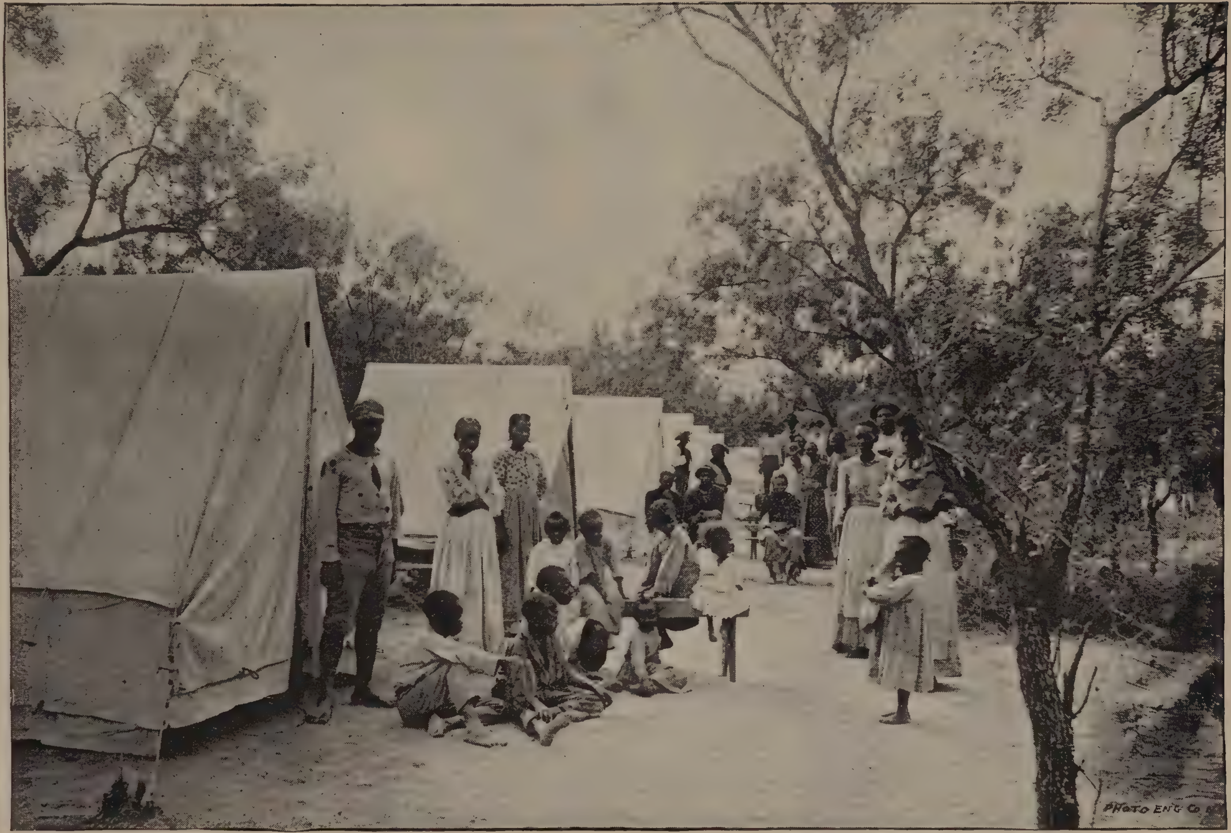
G. M. Magruder,
Passed Assistant Surgeon.

Supervising Surgeon-General,
United States Marine-Hospital Service, Washington, D. C.

The State quarantine officer, on account of the limited quarantine appropriation at his disposal, was unable to incur the expenditure necessary to properly equip and conduct a quarantine camp on so large a scale, and in obedience to your instructions assistance was offered.

Twenty additional guards were accordingly employed; two physicians were sent to aid in caring for the sick; the purchase of the necessary cots was authorized; tents were shipped from Waynesville, Ga., and in accordance with a further request, made by Dr. Swearingen, State health officer, authority was granted the officer in charge (Dr. Evans, quarantine officer) to increase the ration and purchase all necessary supplies for the sick. On August 10, however, after a personal inspection by State Health Officer Swearingen, the State asked to be relieved of the burden of further administration, and in obedience to your order the service assumed control of Camp Jenner on August 11.

Tents which had been sent by fast freight from Waynesville, Ga., were pitched as soon as received. A hospital capable of accommodating 200 patients was established and placed under charge of P. A. Surg. M. J. Rosenau, assisted by Sanitary Insp. Percy Ahrons, with the necessary corps of nurses and attendants. Four detention camps were formed, and the refugees who had not contracted the disease were taken from their former infected camps and, after thorough disinfection, placed in these. A commissary building 14 by 20 was erected, and a bridge 100 feet long was thrown across Elm Creek in order to facilitate communication with the city. Discipline as strict as the circumstances seemed to demand was inaugurated; picket lines, closely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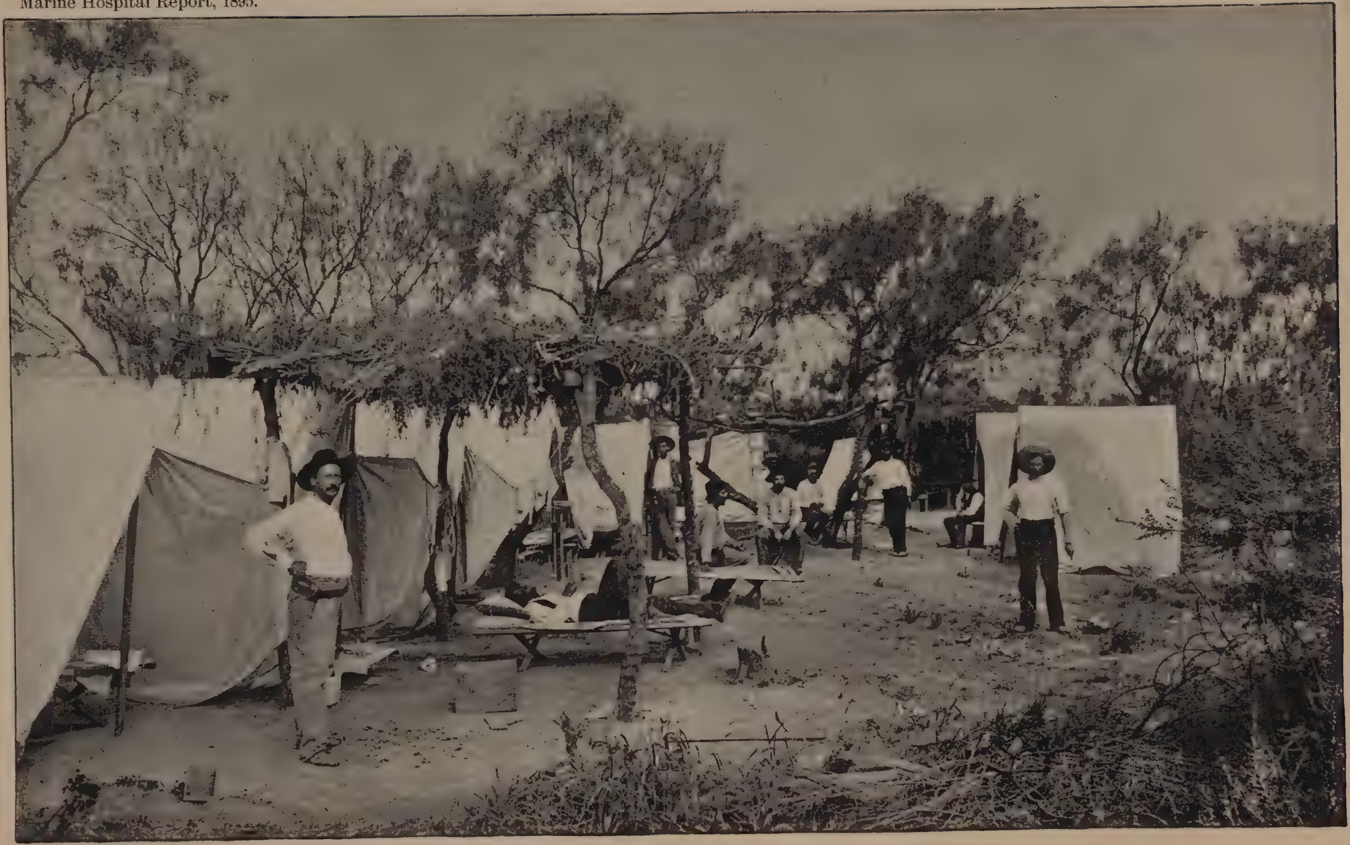
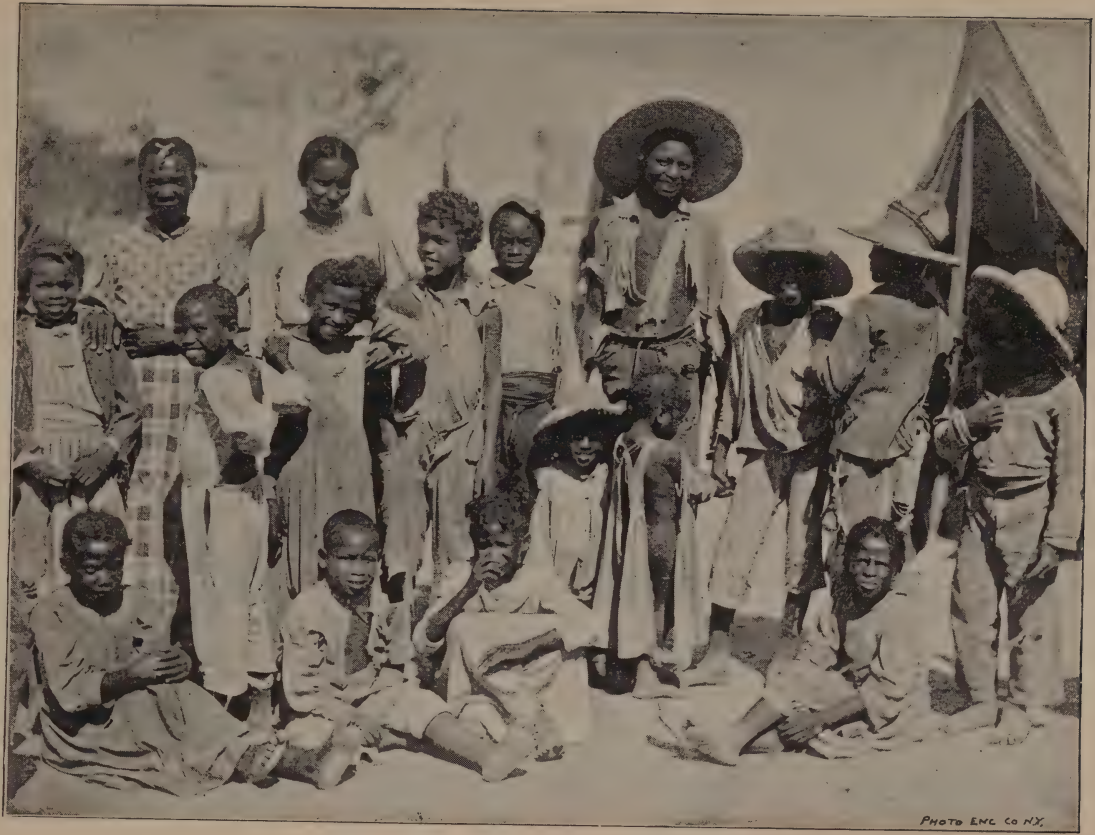
CAMP JENNER—REFUGEE CAMP No. 3, AVENUE L. (VIEW 4.)



CAMP JENNER—GUARD CAMP. (VIEW 5.)



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CAMP JENNER—GROUP OF REFUGEES. (VIEW 6.)

guarded, were thrown around the entire camp and also between the different camps, and system and order soon followed the chaotic conditions which had formerly prevailed.

Vaccination was, of course, repeatedly practiced, and this precaution, with the removal of refugees, after disinfection, from their former infected camp, and the destruction of their infected bedding (which they had retained until the Service assumed control) was soon followed by a diminution and finally by the cessation of the appearance of new cases, while the fact that not a single case made its appearance beyond the limits of camp bears evidence to the efficiency of the cordon.

All refugees in the four detention camps were regularly inspected by a medical officer twice a day, in order to detect any new cases as early as possible; and when discovered the patient, with his effects, was immediately removed to the hospital, his tent disinfected, and the remaining occupants of the camp in which the case occurred, together with all their clothing, were given a bichloride bath and detained for a period of fourteen days from the period of disinfection. By following this course the detention camp remained free from infection throughout; but as a further safeguard, all refugees, with their belongings, were again bathed and disinfected on the day of their discharge.

None of the officers or guards contracted the disease. One nurse developed a mild case, which, however, incapacitated him from duty for two days only.

From the opening of Camp Jenner, on August 11, till its close, on October 21, 411 refugees were received; 178 cases of smallpox were treated, with a total of 60 deaths, 51 of which were from smallpox. This gives a mortality of 28 per cent, which, in view of the deplorable condition of the refugees upon their arrival, can not be considered high.

In conclusion, I desire to acknowledge the assistance rendered me by Mr. W. A. Fitch, collector of customs at Eagle Pass. This gentleman aided me in every way in his power, materially facilitating the establishment and administration of camp.

To the United States consul at Ciudad Porfirio Diaz, Col. J. W. Sparks, is due much credit for securing rations and transportation of the negroes to their homes, thereby preventing the Service from incurring the odium of turning adrift in a strange country 300 and more impoverished and helpless negroes. * * *

The officers who served with me deserve something more than a mere mention. P. A. Surg. M. J. Rosenau was placed in charge of the smallpox camp from the opening of camp until ordered to San Francisco on September 17. Sanitary Insp. Percy Ahrons was first detailed to assist Dr. Rosenau, and was then given charge of the disinfecting department. From the fact that it was necessary to establish and organize camp after the patients were on the ground, it can be readily seen that the labor and hardships of the medical officers were greatly increased, and during the entire time these gentlemen performed their duties in a way to reflect credit upon themselves and the Service which they represented. Hospital Steward R. H. Gibson was in camp from August 16 till its close, and as soon as he became accustomed to the changed conditions he performed his duties to my entire satisfaction.

Very respectfully,

G. M. MAGRUDER,
Passed Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

The following table shows the distribution and prevelence of smallpox during the twelve months ending November 1, 1895:

Smallpox in the United States, November 1, 1894, to November 1, 1895, as reported to the Marine-Hospital Bureau.

Place.	Cases.	Deaths.
Arizona:		
Arivaca	5	
Nogales	51	3
Total	56	3
Arkansas:		
Brinkley	8	
Camden	1	
Clay County	50	16
Donaldson	4	
Garland County, including Hot Springs	192	44
Hollywood	1	1
Malvern	4	
Total	260	61
Colorado:		
Pueblo	1	
Connecticut:		
Groton	1	
New Haven	1	
Windsor Locks	1	
Total	3	
District of Columbia:		
Washington	41	6
Florida:		
Key West	1	
Illinois:		
Belvidere	1	
Byron	1	
Cairo	1	
Chicago	432	122
East Chicago	2	1
Des Plaines	1	
Kirkland	1	
Madison	8	2
Olney	1	
Quay	1	
Sandwich	15	
Sycamore	2	
Villa Ridge	5	
Winnetka	4	
Total	475	125
Indiana:		
Clark County	3	1
Covington	1	
Evansville	14	
Franklin	2	
Indianapolis	1	
Jeffersonville	1	1
Laporte	1	
Michigan City	2	1
New Carlisle	1	
Roby	2	
Tell City	4	
Terre Haute	1	1
Walkerton	3	
Whiting	1	
Total	37	4
Iowa:		
Council Bluffs	3	
Muscatine	1	
Total	4	
Kentucky:		
Ashland	10	1
Henderson	1	
High Bridge	2	
Lexington	75	9
Louisville	5	1
Maysville	1	
Paducah	31	
Princeton	11	
Union Junction	3	
Williamstown	2	
Winchester	1	
Total	142	11
Louisiana:		
Monroe	3	1
New Orleans	124	28
Total	127	29
Maryland:		
Charles County, near Glymont	2	
Charles County, near Newburg	25	3
Total	27	3
Missouri:		
Lincoln County	20	
Nodaway County	1	
St. Louis	218	54
Total	239	54
Minnesota:		
Brainard	1	
Michigan:		
Adrian	1	1
Battle Creek	19	4
Bedford Township	1	
Bengal Township	4	
Brownstown Township	3	2
Charlestown Township	1	1
Chester	1	
Danby Township	5	
Detroit	104	29
Grand Rapids	1	
Hamtramck Township	2	
Highland Township	1	
Marquette	1	
Marshall Township	1	
Olivet	2	1
Plymouth Township	4	1
Pontiac Township	1	
Rochester	1	
Royal Oak Township	11	3
Sebewa	12	1
Three Rivers	1	
Watersmeet	4	
Watson Township	1	
Ypsilanti	1	
Total	183	43
Mississippi:		
Vicksburg	3	
New Hampshire:		
Claremont	11	
Croydon	7	
Newport	1	
Total	19	

Smallpox in the United States, November 1, 1894, to November 1, 1895, etc.—Continued.

Place.	Cases.	Deaths.
New Jersey:		
Harrison	2	....
Hoboken	3	....
Paterson	2	....
Snake Hill	1	....
Union Township	1	....
Total	9	....
Nevada:		
Carson	15	....
New York:		
Brooklyn	12	2
New York	64	21
Utica	1	....
West Chester	1	....
Total	78	23
Ohio:		
Cincinnati	116	26
Cleveland	28	1
Coal City	2	....
Columbus	4	....
Deerfield	4	....
Gallipolis	1	....
Lima	1	....
Mansfield	1	....
Millersport	2	....
Toledo	1	....
Wellington	3	....
Total	163	27
Oklahoma:		
Cleveland County	7	....
Pennsylvania:		
Ashbourne	9	1
Danville	1	....
Nazareth	3	....
Philadelphia	382	54
Pittsburg	4	....
Ridley Park	1	....
Wilkesbarre	1	....
Total	401	55
Rhode Island:		
Providence	1	....
Tennessee:		
Cow Island	33	....
Ensley plantation, Shelby County	3	....
Memphis	30	....
Total	66	....
Texas:		
Eagle Pass	178	51
Fort Worth	13	1
Marshall	1	....
Taylor	1	....
Total	193	52
Vermont:		
Washington	2	....
Virginia:		
Buena Vista	8	....
Charlottesville	1	....
Lexington	9	....
Lowmoor*	....	....
Newport News	1	....
Nomini	5	....
Patrick Springs	21	3
Staunton and Augusta County	106	6
Total	151	9
West Virginia:		
Bluefield	1	....
Thacker	3	....
Wheeling	57	6
Total	61	6
Wisconsin:		
Appleton	10	....
Beaver Dam	1	1
Cedarburg	5	....
Chippewa Falls	1	....
Dayton	1	....
Depere Township	8	2
Dorrance Township	9	1
Dover	4	....
Eau Claire	2	1
Fond du Lac	1	....
Fountain Township	1	....
Franklin Township	1	....
Gibson Township	16	4
Granville	1	....
Greenfield	41	5
Lawrence Township	9	1
Manitowoc Rapids	3	1
Menasha	5	....
Milwaukee	422	102
Mishicot	15	2
Oshkosh	3	....
Plover	2	....
Raymond	1	....
Rhinelander	3	1
Rockland Township	1	....
Rochester	1	....
Sparta	6	....
Springville	1	....
Two Rivers	7	1
Total	581	122
Grand total	3,347	633

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*June 14, 1895, smallpox reported.

YELLOW FEVER.

Following is a table, prepared in the division of sanitary reports and statistics, showing the prevalence of yellow fever in all countries as reported to the Bureau:

Yellow fever, November 1, 1894, to November 1, 1895, as reported to the Marine-Hospital Bureau.

Places.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Pernambuco*	Aug. 23	....	....	Yellow fever reported.
	Sept. 28–Oct. 12	30	3	
Rio de Janeiro	Dec. 1–Mar. 30	....	164	
	Apr. 1–June 22	....	301	
	June 30–Aug. 31	....	90	
	Sept. 1–Oct. 12	....	25	
Santos	Nov. 23–Jan. 5	....	6	
	Jan. 26–Mar. 2	123	104	
	Mar. 9–Mar. 16	50	48	
	Mar. 23–Mar. 30	108	87	
	Apr. 17–Apr. 27	181	135	
	Apr. 27–May 3	105	96	
	May 24–May 31	33	18	
	June 23–July 6	17	4	
	Aug. 3–Aug. 10	2	....	
Cuba:				
Baracoa	July 1–July 31	....	12	
	Aug. 1–Aug. 31	....	22	
Cienfuegos	June 23–June 30	....	1	
	July 7–July 21	3	3	
	Aug. 4–Aug. 11	1	....	
	Sept. 1–Sept. 15	4	3	
	Sept. 22–Oct. 27	....	11	
Cardenas	Oct. 4	4	....	
Firmeza	Sept. 13	....	....	Do.
Gibara	Jan. 1–June 23	....	2	
Guatanamo	July 1–Aug. 31	....	60	
Habana	Nov. 1–Dec. 20	96	36	
	Dec. 20–Apr. 4	85	30	
	Apr. 4–May 30	37	16	
	June 1–June 29	31	14	
	June 30–July 25	164	59	
	July 26–Aug. 8	155	54	
	Aug. 8–Aug. 22	145	51	
	Aug. 22–Aug. 29	90	30	
	Aug. 29–Sept. 5	80	26	
	Sept. 5–Sept. 19	210	67	
	Sept. 19–Oct. 3	160	51	
	Oct. 3–Oct. 10	120	33	
	Oct. 10–Oct. 24	160	43	
	Oct. 24–Oct. 31	60	16	
Manzanillo	July 1–July 31	....	43	
	Aug. 1–Aug. 31	....	23	
	Sept. 1–Sept. 30	....	18	
	Oct. 1–Oct. 15	....	21	
Matanzas	Nov. 1–Nov. 7	5	2	
	July 21–Aug. 23	16	....	
	Aug. 21–Aug. 28	12	....	
	Sept. 1–Oct. 2	38	3	
Puerto Principe	June 27	....	....	"About 5 deaths daily."
Sagua la Grande	July 13–July 27	1	....	
	Aug. 3–Aug. 10	4	....	
	Aug. 21	1	....	
	Sept. 7–Sept. 21	5	1	

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* United States consul states under date of October 25 that there is more yellow fever than has been known during the past twenty years.

Yellow fever, November 1, 1894, to November 1, 1895, etc.—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Cuba—Continued.				
Sugar la Grande	Sept. 28-Oct. 12	30		
	Oct. 12–Nov. 2	13	1	
Sancti Spiritu	Aug. 24	30		
Santa Clara	Aug. 25	2		
Santo Domingo	do		2	
Santiago de Cuba	Nov. 1–Nov. 10	11	5	
	Mar. 1–Mar. 31		8	
	Apr. 1–Apr. 28		11	
	May 1–May 15		4	
	June 1–June 29		47	
	June 30–Aug. 17		259	
	Aug. 17–Aug. 31		44	
	Sept. 1–Sept. 14		27	
	Sept. 15–Sept. 28		38	
	Sept. 28–Oct. 12		19	
	Oct. 13–Nov. 9		79	
Yaribacoa	Sept. 1–Sept. 30		7	
Ecuador:				
Guayaquil	Jan. 24–Feb. 22	14	8	
	Oct. 4–Nov. 8		3	
Mexico:				
Acapulco	Sept. 14–Sept. 21	1		
Guaymas	May 20			Yellow fever reported.
La Paz	Sept. 24	3		
Mazatlan	do			Do.
Vera Cruz	Nov. 1–Nov. 22		3	
	Dec. 27–Jan. 24		5	Do.
	Feb. 21–Feb. 28		1	
	Mar. 4–Mar. 21		1	
	Apr. 4–Apr. 18		2	
	May 2–May 30		11	
	May 31–July 11		35	
	July 18–Oct. 3		78	
	Oct. 17–Oct. 24		1	
Salvador	Nov. 1–Jan. 15		57	
	Nov. 1			Do.
Puerto Rico	Nov. 1–Jan. 9		7	
	Feb. 28–Mar. 6	2	1	
	Apr. 17–Apr. 24	1		
Mayaguez	Oct. 2			A few cases have occurred among the garrison.
Aguadilla	Oct. 1	1		
San Juan	July 1			Over 100 cases in military hospital.
	July 6–July 27	104	87	
	Aug. 3–Aug. 31	22	16	
	Sept. 1–Sept. 21	22	6	
	Sept. 21–Oct. 12	21	7	
Venezuela:				
Betizogue	Nov. 6			Yellow fever reported.
Maracaibo	Nov. 17–Nov. 24	1	1	
	Feb. 2–Feb. 9		1	
	June 8–June 15	1	1	
West Indies:				
Antigua, St. Johns	Sept. 23–Oct. 26	3	3	
Curaçao	Dec. 28–Jan. 5	3	3	

PREVALENCE OF YELLOW FEVER.

In the island of Cuba and in Brazil it will be found that the disease assumed epidemic form as usual, and while it is not entirely possible from the character of the reports made to this Bureau to give any satisfactory judgment as to the severity of the disease in the two countries, as the reports have not been of the desired uniformity—some giving only the deaths from yellow fever, others giving both cases and deaths—yet an intelligent survey of the situation may be gathered from an examination of the table. In Brazil, 1,078 deaths have been reported in Rio de Janeiro and Santos, during the twelve months ended

November 1, 1895. In Cuba the existing insurrection has interfered to a great extent with the transmission of exact information from the disturbed provinces, excepting the coast cities, and the normal condition of health in that island has been, of course, largely modified by the presence of a great body of non-immune Spanish soldiers sent by the home Government to quell the rebellion. These persons have taken the disease and added to the natural number of cases annually prevalent in the island. A total of 1,302 deaths has been reported in sixteen civil districts during the year ending November 1, 1895. The reports include, however, only a small proportion of the cases which have occurred among the troops, no exact statement being furnished. Habana is credited with 526 deaths, and Santiago de Cuba with 541 deaths, and the reports from Habana give a total of 1,593 cases, from which a mortality of about 30 per cent is deduced. On the island of Puerto Rico the disease has been quite prevalent, many cases appearing in the military hospitals. In San Juan, on that island, 169 cases, with 116 deaths, make the record for the past twelve months. In Mexico a few isolated cases have appeared in several of the coast towns, but only in Vera Cruz, where in the last year 137 deaths have been reported, has it reached epidemic importance. The history of yellow fever on the Western Hemisphere is made complete by stating that it has not been reported outside of these places above mentioned, except a few isolated cases in Ecuador, Salvador, Venezuela, and two of the West India islands.

PRECAUTIONS AGAINST YELLOW FEVER.

Special precautions to prevent the spread, particularly from Cuba to the United States, were taken and have already been enumerated in the résumé of operations and in the reports of the sanitary inspection service and national quarantines. A brief review, however, at this point may not be uninteresting.

The coast of Florida was patroled by four revenue cutters, carrying sanitary inspectors of the Marine-Hospital Service, to intercept fishing smacks which hover around the coast of Florida, coming direct from Cuba, with no intent of entering legally any port of entry, but with the intent of smuggling; and also for the purpose of intercepting any returning filibustering expeditions or refugees from the island of Cuba seeking to land surreptitiously. Sanitary inspectors were stationed permanently in Habana and Santiago, and sanitary inspectors were sent to every seaport of Cuba to make report to the Bureau of the prevalence of yellow fever therein. Special inspections were made of the South Atlantic and the Gulf quarantine stations, all possible defects either in administration or appliances were corrected, and the whole corps of quarantine officers in this portion of the United States were made to feel the necessity of extra vigilance. Fortunately no case of yellow fever landed upon the coast.

PORTABLE PROBATION CAMP.

Referring to the fever in Tampa, concerning the nature of which there was grave doubt, and to the necessity of making preparation to prevent its spread, provided the inspecting officer might report it to be yellow fever, all of which has been mentioned in the foregoing pages, and referring to the portable probation camp, which it was necessary to prepare for the possible emergency, I insert here the working plan and specifications to be used in the establishment of the camp, and also a description of the material for its construction, now stored at Waynesville, in readiness for transportation.

INSTRUCTIONS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 24, 1895.

SIRS: You are requested to prepare plans of a probation camp with a view to erecting said camp in the shortest time possible.

The plans desired are for a camp of 1,000 refugees. If practicable, however, they should be so devised that they can be used for the construction of a camp half that size.

The camp will consist chiefly of tents 12 by 14, with overhead flies. In addition, however, certain frame buildings are required, viz, kitchen and dining room, subsistence stores room, general office, including telegraph office, etc., details of which can be found in the reports concerning Camp Perry and Detention Camp, Waynesville.

The camp having been laid out on paper, it is desired to have working plans and specifications of the buildings that must be erected so that the same may be handed to any constructor for immediate work.

In this plan everything necessary for a camp, in the nature of construction and equipment, should be enumerated.

Respectfully, yours,
WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Surg. H. R. CARTER, and
P. A. Surg. J. J. KINYOUN.

Specifications for probation camp, with accompanying plan, prepared in accordance with the above order.

The rectangular space, 300 by 600 feet for 250 tents, 300 by 480 feet for 200 tents; surrounded by the tents. A space 160 feet wide around it, which allows for the tents and a 16-foot cleared space outside, to be cleared of small brush and leveled; trees and saplings capable of giving shade to be left standing as far as practicable.

Two hundred and fifty tents can accommodate 1,000 people; 125 tents can accommodate 500 people. This is exclusive of those needed for attendants and guards, which can be placed in the squares at the corners or elsewhere as needed.

Tents are on floors, dressed on one side, nailed, and not less than 6 inches above the ground.

The buildings required:

(1) Kitchen, 24 by 24 feet, if for camp of 500 people; 24 by 36 feet, if for camp of 1,000 people.

(2) Dining rooms, 24 by 90 feet; two of them for 500 people; four of them for 1,000 people.

(3) Surgeon's office and executive building, 12 by 24 feet, with partition railing across inside.

(4) Telegraph office, 12 by 12 feet.

(5) Quartermaster's office, 12 by 24 feet.

(6) Guardhouse, 12 by 24 feet, with a partition.

(7) Warehouse, 24 by 48 feet, two partitions, as indicated on plan; platform 12 by 60 feet.

(8) Fumigating house, 12 by 12 feet, double ceiling, lined between ceilings with builders' paper, as near air-tight as possible.

(9) Buildings (five) at yellow-fever hospital: Doctor's office and kitchen, 12 by 24 feet, with partition; four hospital buildings, each 12 by 12 feet.

(10) Laundry building, 24 by 24 feet.

Buildings to be of rough pine, except floors, which are to be of stuff planed on one side; 10-foot walls, and one-half pitch for roof. Dining rooms to be provided with flap windows, unglazed, for ventilation; 12-foot walls, provided with cord and pulley. All other buildings to be provided with similar windows, placed in the gable ends.

Railroad siding to be on one side, next to camp, the platform and warehouse adjacent thereto.

Ventilating collars to be provided in roof for flues of range and steam-cooking apparatus and coffee boiler (60-gallon soup kettle and coffee boilers).

Laundry to be furnished with steam from kitchen boiler.

One hundred and sixty feet of dining table for dining room, 3 feet wide, in 20-foot lengths.

Rough, tight boxes extending the length of the latrine should be made, placed under seats, and when necessary be removed by scavenger cart one-quarter to one-half mile in woods; should then be covered with dry pine, and the whole set on fire, meantime putting new boxes under the seats.

The nature of the ground will determine many features of a camp—size of plaza, distance apart and arrangement of tents and location of buildings; and this plan is proposed simply as a general one to be modified as the exigencies of the location, etc., renders advisable.

REPORT ON THE PREPARATION OF PORTABLE PROBATION CAMP.

Office of Medical Officer in Command,
Marine-Hospital Service,
Savannah, Ga., August 12, 1895.

Sir: I have the honor to submit herewith report of work done in preparing the movable detention camp, as forwarded by Steward S. W. Richardson.

Respectfully, yours,

Jas. A. Nydegger,
Assistant Surgeon, Marine-Hospital Service.

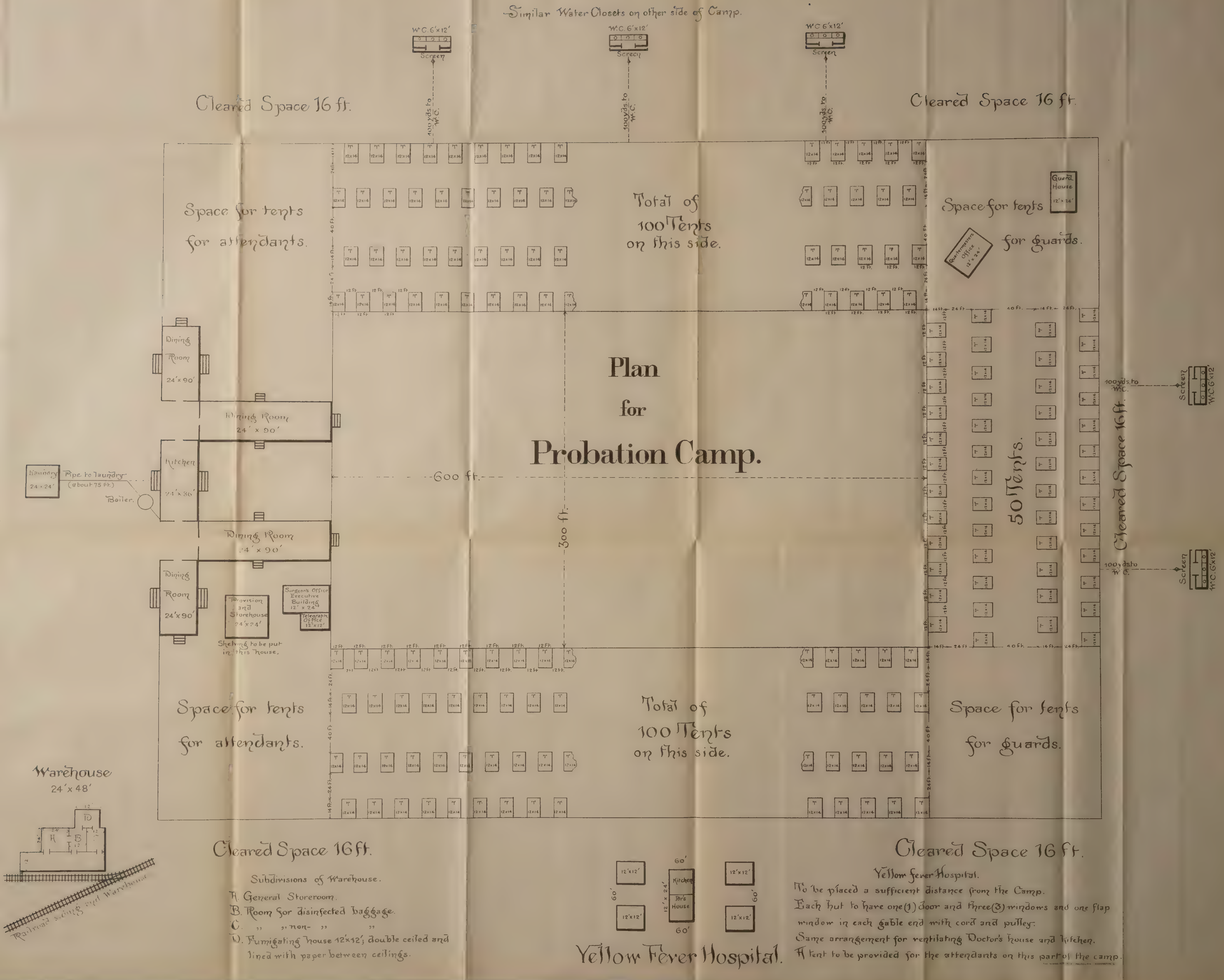
Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

Office of Medical Officer in Command,
Marine-Hospital Service, Detention Camp,
Waynesville, Ga., August 10, 1895.

Sir: Having completed the duty assigned me by Bureau orders of July 13, 1895, and your letter of instructions dated July 17, 1895, I have the honor to submit a final report of work performed in preparing a movable camp at this place, as follows, viz:

New floors constructed for tents:	
14 by 14 feet	1
12 by 14 feet	70
9 by 12 feet	29
6 by 8 feet	13
Old floors cut into two sections, rebuilt and hauled	156

Plan for Probation Camp.


Similar Water Closets on other side of Camp.
W.C. 6'x12'
Screen
100 yds. to W.C.
Cleared Space 16 ft.
Space for tents for attendants.
Total of 100 Tents on this side.
Space for tents for guards.
Guard House 12'x24'
Quartermaster's Office 12'x24'
T
12x14
12 ft.
14 ft.
24 ft.
40 ft.
Dining Room 24'x90'
Kitchen 24'x36'
Laundry 24x24'
Pipe to laundry (about 75 ft.)
Boiler.
Provision and Storehouse 24'x24'
Shelving to be put in this house.
Surgeon's Office Executive Building 12' x 24'
Telegraph Office 12'x12'
600 ft.
300 ft.
50 Tents.
Warehouse 24'x48'
A
B
C
D
Railroad siding and Warehouse
12'x12'
Kitchen
Dr's House
12'x24'
60'
Yellow Fever Hospital.

Subdivisions of Warehouse.

A. General Storeroom.
B. Room for disinfected baggage.
C. " " non- " "
D. Fumigating house 12'x12'; double ceiled and lined with paper between ceilings.

Yellow Fever Hospital.

To be placed a sufficient distance from the Camp.
Each hut to have one (1) door and three (3) windows and one flap window in each gable end with cord and pulley.
Same arrangement for ventilating Doctor's house and kitchen.
A tent to be provided for the attendants on this part of the camp.

Tent frames cut out and crated:	
14 by 14 feet	1
12 by 14 feet	253
Tent frames cut and left loose:	
9 by 12 feet	29
6 by 8 feet	15
Single mattresses, remade from old double ones	674
Single mattresses, put up in bundles of 4 each, bundles	278
Barrels packed with crockery, etc	13
Boxes, large and small, packed	17
Bales of blankets, pillows, etc., made ready for sacking	95
Tents, inspected and rerolled, 14 by 14 feet and 12 by 14 feet	264
Tents packed and shipped to Eagle Pass, Tex	199
Wire cots, packed in bundles of 4 each, bundles	110
Wire cots repaired, new legs, braces, and bolts	70
Portable tables constructed, 7 by 2½ feet	50

The floors and frames for the 9 by 12 foot and 6 by 8 foot tents will be of no use, as there is now, at camp, no canvas to cover them, the tents for which they were intended having been shipped to the collector of customs, Eagle Pass, Tex., on the 5th instant, by telegraphic orders of the Supervising Surgeon-General.

The tent floors have been constructed with the 2 by 4 inch joist, laid flatwise to economize room in shipment, it being possible to pack 36 floors on a flat car, whereas had they been built the wide way of the joist but 24 could have been accommodated in the same space.

It was found to be impracticable to bind the bundles of frames with wire, the lumber being green, and when seasoned the shrinkage would have rendered the binders so loose as to destroy stability. They have been crated with strips nailed to the sides, and board ends. This makes a solid package, that will not come apart by rough handling. It was deemed inadvisable to pack the nails in the bundles of frames, as they would have soon corroded and most of them lost out in transporting and unpacking. The lumber used in crating was waste ends that could be put to no other use, so that no expense was incurred except the nails used.

The frames have been placed upon skids properly separated by strips of boards three-fourths of an inch in thickness, insuring proper circulation of air to season the lumber, and covered with tent floors set at proper pitch to shed rain.

There is some lumber unused which has been properly cared for.

Several bundles each of spare ridges, plates, posts, braces, rafters, and collar beams have been made up and stored with the frames, so that any accidental breakage, or deficiency in packing, may at once be made good.

All ends of boards and scantling are saved and put aside for the purpose of blocking up the tent floors when put to use. In overcoming irregularities of surface and securing proper elevation of the floor they are necessary and can not always be readily procured. They can be transported in the spaces between the floor joist and without additional expense.

Considerable inconvenience was experienced due to the delay in delivery of lumber, the first cars arriving four days after the time agreed upon.

I am indebted to Mr. A. V. Sceals, custodian, for valuable advice and assistance during the entire progress of the work.

All letters and papers relating to the work have been filed here, and copies of all communications sent by me made in the letter book pertaining to the camp.

Yours, respectfully,

SAMUEL W. RICHARDSON,
Hospital Steward, Marine-Hospital Service.

Asst. Surg. J. A. NYDEGGER,
United States Marine-Hospital Service, Savannah, Ga.

FINAL REPORT ON PORTABLE PROBATION CAMP.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Savannah, Ga., November 1, 1895.

SIR: I have the honor to make the following report of the formation of the portable camp at Waynesville, Ga.

In compliance with orders of July 13, 1895, reading, "You are informed that it is desirable to make all possible preparation for the establishment of a portable camp, to the end that, should emergency arise, it may be completed as quickly as possible," I arrived at Waynesville, Ga., on July 15.

An inspection was made of the equipage stored on the grounds of the old detention camp established during the Brunswick epidemic of 1893, as to its utility, adaptability, convenience of loading on cars, etc.

As the portable camp was to have a much greater accommodation than the old detention camp, namely, 200 tents for refugees, 15 tents for officers, employees, guards, etc.; 5 tents for a hospital camp, as follows: 2 for the sick, 1 for the nurse and cook, 1 for the physician, and 1 for the commissary, much labor, about 100,000 feet of lumber, and stores of supplies were required, and recommendation was made accordingly.

Steward S. W. Richardson having reported for duty from New York, was detailed for duty at the camp in order to superintend the work personally, with a force of 22 laborers, these being 1 carpenter, 15 workmen, and 6 females.

LOCATION.

The portable camp is located 23 miles west of Brunswick, immediately on the line of the Brunswick and Western Railroad, on an eminence on the south side of the track, the site of the old detention camp, being some 35 miles from Waycross, Ga., an important railroad center, from which lines run in several directions into the States of Florida, Alabama, Mississippi, Louisiana, Georgia, South Carolina, and North Carolina.

Geographically, the location of the camp is most admirable for the direct and rapid transportation to any point on the Gulf and in the South Atlantic States.

CONSTRUCTION.

All tents are provided with floors made of ¾-inch pine, one side smooth, tongued and grooved, and laid on 2 by 4 inch joists, placed flatwise to economise room in shipment; it being possible to pack 36 floors on a flat car, whereas had they been built the wide way of the joists but 24 could have been accommodated in the same space.

The floors for each tent were constructed in halves of equal dimensions, the whole floor being far too heavy and unwieldy for handling, beside being too wide for the cars. The edges of the junction of each floor were fitted, and afterwards numbered in duplicate and the dimensions marked thereon. The floors were made of various dimensions, to correspond to the tents, and it is to be regretted that all could not be made of a uniform size. The following sizes were constructed of new lumber:

14 by 14 feet	1
12 by 14 feet	70
9 by 12 feet	29
6 by 8 feet	13

In order to facilitate movement and to permit of transportation, the old floors, of which there were quite a large number in a good state of preservation, were cut into two sections of equal dimensions, rebuilt, refitted, and numbered. Of these, there are 156 12 by 14 feet. The floors for the 9 by 12 foot and 6 by 8 foot tents will be of no use unless covers are furnished, as there is at camp no canvas to cover them, the tents for which they were intended having been shipped to Eagle Pass, Tex., to be used at Camp Jenner.

All floors are stacked on the grounds parallel with and within a short distance of the railroad, with a view to facilitate rapid loading on the cars in case they are required. The floors are roofed, and the roofs were recently oiled and painted as a protection against the weather.

All tents are furnished with frames, consisting of uprights, stringers, rafters, and ridge pole. The uprights are in such lengths as to give the tent a vertical wall of 4 feet when put over the frames. Each tent is provided with a footboard 1 foot wide, to be nailed on outside of the uprights, extending all around, for attaching the tent canvas with galvanized nails. This arrangement was thought preferable to guy ropes and pins (1) on account of the looseness of the soil in the South and (2) as a guard against destruction by storms, the latter having been experienced by officers of the Service while in charge of camp where the tents were held in place by the rope-and-pin plan. The frames need be no objection in case it is desired to use ropes and pins as a double precaution.

The material for tents, after being cut in proper lengths and fitted, was put up in crates, with refuse pieces of lumber, the material for one tent going to one crate, then tagged with dimensions of frame. The frames for the 9 by 12 foot and 6 by 8 foot will also be of no use unless tents are furnished, for the same reason as the 9 by 12 foot and 6 by 8 foot floors, as previously mentioned.

The frames have been packed upon skids, properly separated by strips of boards, insuring proper circulation of air to season the lumber, and covered with floors. They are also near the railroad.

Portable tables were constructed, with supports or legs fashioned after the carpenter's horse. On these supports the table top of 1-inch pine, 7 by 2 feet 6 inches, rests. Fifty tables were constructed. They will give a seating capacity to about 300 persons at a time. By making the tables as above described a saving of much storage and transportation space was secured, besides being quicker made and at a less cost than tables with stationary legs, not considering the increased facility of handling the former and the unwieldiness of the latter.

Latrines were fashioned out of the 6 by 8 foot tents, furnished with floors, and seats 1½ feet wide, smooth on the upper surface and perforated.

The female force was employed in cutting up a large number of double mattresses on hand and making them over into single mattresses, two double mattresses being required to make three single ones. Of these, 674 were made.

FURNISHINGS, SUPPLIES, AND PACKING.

A portable steam disinfector and sulphur furnace of the Kinyoun-Francis design were received and put in good condition by skilled mechanics furnished by Messrs. Valk & Murdoch, of Charleston, S. C. These apparatus were furnished with tarpaulin covers. They are stored at the Savannah, Florida and Western Railroad depot, in Savannah, where they can be loaded on a car in short notice, it being rather inconvenient to have them at camp, there being no facilities for taking them off or loading them on the cars. These apparatus form a very important part of the portable camp.

Requisition was made on the Bureau for tents and tent flies, cots, bedding, and medical supplies, and authority obtained to purchase cooking utensils and kitchen ware, laundry furniture and equipments, dining-room furnishings, tools and hardware, and water and distribution supplies.

Tents, beds, and medical supplies were furnished by the Bureau—folding wire cots and other forms of cots from New York; a 30-horsepower upright portable boiler and two Troy washers from Philadelphia, and tools and hardware, tinware, cutlery, paints, and oils from Savannah.

All material, as tents, flies, bedding, mattresses, blankets, sheets, and pillows, have, as far as practicable, been put up in bales, bundles, boxes, packages, barrels, etc.

The tents were rolled into bundles and tagged with the size of tent and the department to which they belong.

Mattresses were put up in bundles of four each; wire cots in bundles of four each (number for each tent); blankets, sheets, and pillows made into bales and covered with burlaps; crockery, tinware, hardware, and the like securely packed in barrels and boxes and tagged, contents of package placed thereon. New supplies, as received, were repacked, as far as practicable, labeled, and stored away. Everything, as far as possible, was stored in the storehouses in a systematic manner, so as to prevent confusion and delay in shipping.

Classifying, we have in the water supply and distribution department drive-well points, piping cut in various lengths and threaded ready for joining, and water carts for distributing water about the camp and for use in case of fire. In the laundry department the 30-horsepower boiler for furnishing motive power to the Troy washers, hot water, and steam to the kitchen. In the medical department, a complete assortment of medicines and drugs, spirits, emergency surgical instruments, and disinfectants. In the kitchen department a number of large ranges, giving a sufficient cooking capacity; a 50-gallon coffee boiler; two 60-gallon soup and vegetable boilers, and other accessories. In the dining department a supply of crockery, cutlery, tinware, etc.

Thus, each department may be said to be as far as possible complete within itself.

And so we have a portable camp, which, in all probability, is the first of its kind ever formed; and which can within a few hours time be loaded on 50 or 60 cars and hurried away to its point of destination, there to be set up in an entirely systematic manner.

Owing to the large amount of valuable supplies stored at the camp, and the need of guarding by night as well as by day, and more so in this spot, surrounded by forests on all sides, a night watchman has been employed since September 12, for a moral effect, and also as a guard against accidental fires. His duty is to make the rounds of the storehouses and grounds at regular intervals throughout the night.

The custodian, Mr. Sceals, lives at the camp and has general charge, being subservient to the medical officer stationed at Savannah, Ga.

Recently the 14 storehouses and buildings were painted and whitewashed.

I am indebted to Steward S. W. Richardson and Mr. A. V. Sceals, custodian, for many valuable suggestions as to the construction and preparation of the camp.

Respectfully, yours,

JAMES A. NYDEGGER,
Assistant Surgeon, Marine-Hospital Service.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

Historical, statistical, and other data concerning yellow fever in the West Indies, particularly Cuba and Habana, and calling attention to the constant danger of its introduction into the United States.

I submit herewith historical, statistical, and other statements, compiled by my order from official reports and the best attainable authorities, including Spanish writers. These statements are included under the following heads:

1. Historical sketch of yellow fever in the West Indies.

2. Cuba:
    - (*a*) Description of the island.
    - (*b*) History of yellow fever in Cuba.
    - (*c*) Official statement of mortality from yellow fever from 1853 to 1879.
    - (*d*) Causes of the insanitary condition of Cuban ports, and yellow fever prevalence therein.
    - (*e*) Ports of the United States trading direct with Cuba.
3. Habana:
    - (*a*) Sanitary description of city.
    - (*b*) The harbor.
    - (*c*) Proposed plans for sanitation of harbor.
4. Habana the chief source of yellow-fever infection:
    - (*a*) Its infected wharves.
    - (*b*) The quarantine defense required by the United States.
    - (*c*) Report of the Congressional committee thereon.
    - (*d*) No improvement in the sanitary conditions.
    - (*e*) Recent report on water supply and drainage of Habana.
5. Table showing the years in which yellow fever has visited the United States and large proportion of years in which the infection has come from Habana.

YELLOW FEVER IN WEST INDIES—HISTORICAL SKETCH.

The descriptions of yellow fever in the Spanish settlements of the West Indies are very unsatisfactory until 1635. All earlier dates must be regarded as probable but not absolutely authentic dates of yellow-fever outbreaks. Dariste, in his "Investigaciones sobre la fiebre amarilla," 1825, observes that "all the accounts of early epidemics show that whenever the Spaniards undertook to found a colony they were attacked by fatal epidemics, but the incompleteness of the descriptions given leaves us to conjecture as to the nature of these epidemics." Gomorra and Herrera merely note the coloration of the skin; Fernando Colon refers to the coma observed in the disease, and Peter Martyr d'Angleria mentions its contagiousness. Father Labat asserts that yellow fever was introduced into Martinique in 1682 on the *Oriflamme*, from Siam, and states that this vessel had touched on the coast of Brazil, where for seven or eight years previously a similar epidemic had prevailed.

Moreau de St. Méry gives the date of the introduction of the disease into Martinique as 1688–89, and does not mention that the *Oriflamme* touched on the coast of Brazil. The epidemic received the name of mal de Siam. Warren and other medical authorities assign a later origin to yellow fever. In 1763 Chisholm gave it the name of Bulam fever, from the name of an island off the coast of Guinea, showing that he considered yellow fever to be of African origin. By some authorities yellow fever is believed to have been generated on vessels engaged in the African slave trade. This theory is in line with the latest discoveries in regard to the development and propagation of infectious disease. Virey thus describes the conditions under which the passage of the slaves from the African coast to the West Indies was made: "These unfortunate creatures were crowded together in a space too confined for movement. Each had only as much room as he would occupy in his grave, and barely air enough to support his miserable existence. Fifteen hundred of these unhappy beings were crowded together in the hold of one vessel. Imagine the fetid and suffocating exhalations from this mass of human bodies, especially at night when the hatches are closed. Women died in great numbers. Every day the dead were taken from the stifling hold where the living scarcely breathed, and where terror and anguish had no relief but death." And he adds: "Some physicians attribute to all these united causes of infection the origin of yellow fever and of ship typhus."

Senegal, on the west coast of the continent of Africa, has been asserted to be the focus of yellow fever, but this can not be accepted as proven, in view of the fact that Senegal was settled by the French in 1635 and that the first recorded case of yellow fever in that country was found by Féraud to have occurred in 1759. In 1778 an epidemic of yellow fever prevailed in Senegal, but the infection was traced to Sierra Leone, which, according to Kirsch, "is the headquarters of yellow fever in Africa and the starting point of its epidemic inroads into the territories lying to the west and south, and into the west African islands."

It will be seen from the historical evidence here briefly given that from whatever source derived, whether an African or Asiatic importation, or an aggravation of a form of disease known in the islands before the date of European occupation, yellow fever infected the Antilles—after 1635 certainly, and probably very much earlier. The following table gives an approximately accurate statement of the places and dates of yellow fever epidemics from 1492 to 1762. The least reliable dates are followed by a mark of interrogation.

List of places and dates of the prevalence of yellow fever in the West Indies, 1492–1762.

Island.	Date of first settlement by Europeans.	Year of occurrence.
Antigua	1629	1706.
Barbados	1646	1647, 1665, 1691, 1693, 1695*a*, 1696, 1699, 1701, 1706, 1715, 1720*a*, 1721, 1722*b*, 1723, 1724, 1724*c*, 1733, 1740*a*.
Curaçoa	1634	1750, 1760.
Cuba	1511	1620*e*, 1648–1655, 1761, 1762 (Pezuela, etc.).
English Antilles	....	1701.
Grenada	1650	1694.
Guadeloupe	1635	1635, 1640, 1648, 1653. Has generally suffered when epidemic prevailed in Martinique, but records not so well kept.
Jamaica	1509	Epidemics reported during "first years" of settlement; also 1691, 1704, 1750.
Martinique	1635	1641*c*, 1648*c*, 1649*a*, 1651*d*, 1653*c*, 1655*c*, 1669, 1682, 1708*d*, 1721–1735*c*, 1749–1755*c*, 1762*d*.
Montserrat	1632	1690.
Niéves	1628	1706.
Puerto Rico	1508	1508, 1513*e*.
San Domingo	1492	1493, 1494, 1495, 1496, 1503, 1508, 1514, 1533, 1554*e*, 1560*d*, 1567*e*, 1580*e*, 1583*e*, 1585, 1586*e*, 1623*e*, 1642*e*, 1660*e*, 1685, 1686*d*, 1690, 1691, 1705, 1708, 1733–1744, 1746*b*, 1755. "18 disastrous epidemics, 1700–1800."—Codinach.
St. Christopher	1625	1648, 1652, 1653.
St. Croix	1640	1640.
St. Lucia	1639	1691*f*.
St. Thomas	1650	1702.
Bermuda	1609	1699*g*.

Dates having no reference letter are given on the authority of Cornilliac. Lettered dates are cited on the authority of the following-named:

a Am. Ed. Cyclo. Pract. Med., 1845, art. "Yellow fever."
b Hirsch.
c Féraud.
d Pym.
e Codinach.
f M. de Jonnès.
g Emart's Yellow Fever Epidemics of Bermuda, 1863.

Most of these authorities refer to the original sources from which they derived their information.

That Cuba remained free from permanent yellow-fever infection until the middle of the eighteenth century was due to her comparative commercial isolation. During the first two centuries and a half of Spanish possession the colonists in Cuba were occupied mainly in raising cattle on the vast prairies of the island. Agriculture was neglected, and Habana exported only hides and leather. The gold mines of

Mexico and Peru attracted the commercial enterprise of Spain to those countries, to the neglect of Cuba. In early colonial times the fleets passing to and fro between Spain and America made San Domingo City their haven, and at a later date vessels from Spanish America delayed at Habana only for provisions or to unite in convoy against corsairs and filibusters. Preyed upon by pirates, and oppressed by Spain's most burdensome laws restricting colonial commerce, Cuba made so little progress in material prosperity that in 1762, two hundred and fifty years after colonization, the population numbered only 120,000. In the one hundred years succeeding 1762 this number had swelled to nearly 1,500,000. Not until after the capture of Havana by the English did Cuba become the Queen of the Antilles. During the English occupation a new impulse was given to trade and agriculture by England's commercial activity. The culture of sugar, tobacco, and coffee, and with it the importation of slave labor, was introduced. Increased prosperity brought thousands of immigrants from Spain, and Cuba entered upon an era of commercial and industrial importance. Unfortunately, the causes that created her material prosperity destroyed the defenses of the island against yellow-fever infection, and resulted in encircling Cuba with an infected seaboard, which is a perpetual menace to the health of the shipping in her ports and the countries that stand in close commercial relation with her.

ISLAND OF CUBA—DESCRIPTION.

The Island of Cuba, the largest of the 1,000 islands of the Antilles group, is situated less than 100 miles from the most southern of the islands lying immediately off the coast of Florida. The tropic of Cancer lies between them. On a parallel of longitude the distance between the most southerly part of the island is about 238 miles, and its length, on a parallel of latitude, about 690. The island is, however, so irregular in shape that its average breadth is only about 52 miles, the extremes being from 26 to 35 miles, and its greatest length from east to west 800 miles. There are few towns of importance situated more than 25 miles from the seashore. The coast line is extensive, being 2,200 miles; although in a great measure inaccessible on account of shoals and reefs, it offers more than 200 harbors. Of these only 15 are ports of entry, from which shipments are made to foreign countries, and these alone are of importance in connection with the infection of vessels. The northern ports of entry, passing from west to east, are eight in number. They are Habana, Matanzas, Cardenas, Sagua, Caibarien, Nuevitas, Gibara, and Baracoa. The last named was the first European settlement made in Cuba. It is the principal fruit port. The southern ports of entry, passing from east to west, are seven. They are Guantanamo, Santiago de Cuba, also called Cuba, Manzanillo, Santa Cruz, Zaza, Trinidad, and Cienfuegos.

In considering the danger to the United States of yellow-fever infection from Cuba, it should be borne in mind that we are concerned only with the infected seaboard. The inland towns and districts in which the climatic if not the local conditions are good, and yellow fever exists only as an importation, do not enter into the question. This inquiry is limited to those infected seaports of Cuba which constitute a menace to the health of the United States.

History of yellow fever in Cuba.

The first undoubted invasion of Cuba by yellow fever occurred in 1761. In May of that year the Spanish men-of-war *Reina* and *America*, which arrived at Habana from Vera Cruz with material and prisoners for the work of construction of the exterior fortifications of the city, communicated an epidemic of vomito negro to Habana and its vicinity. This date marks the beginning of the permanent presence of yellow fever in Habana.

Earlier records of epidemic outbreaks are as follows:

1620. "A pernicious and malignant fever decimated Habana and the crews of the fleet lying in the harbor. The epidemic persisted from June to November, 1620.

1648. "In this year there occurred in Habana a great pest of putrid fevers, which remained in the port all summer. A third part of the garrison and a larger part of the crews died." (Pezuela, vol. 3, p. 23.)

1649. "In the spring of 1649 an unknown and horrible epidemic imported from the continent of America caused consternation in Cuba. A third part of the population was devoured from May to October by a species of putrid fever. which carried off those attacked in three days." (Pezuela, vol. 3, p. 182.)

In 1653, 1654, 1655 this epidemic recurred with "equal fury, in spite of the precautions to prevent communication between the towns, which were, however, better protected by their distance from each other, and by the bad roads, than by these precautions." (Pezuela, vol. 3, p. 182).

When it is considered that in its early history yellow fever is most frequently denominated the "pest," that the scanty records quoted indicate some of the characteristics of yellow fever, and that historical records prove the existence of yellow fever in other islands of the Antilles in 1640, it seems impossible to doubt that yellow fever did visit Cuba as an epidemic during the above recorded years.

It should, however, be observed that there are no historical records of such epidemic visitations in Cuba between 1655 and 1761. The disease appears to have wholly disappeared, and without leaving behind it those attenuated forms which follow an epidemic outbreak of yellow fever and constitute the so-called "acclimatizing fevers." The earlier epidemic, that of 1620, was followed by a general conflagration, in which nearly the entire town of Havana was destroyed. This fire may have prevented the implantation of the disease by destroying the foci of infection. In Russia fire has been resorted to for the suppression of bubonic plague. During the period that elapsed between 1655 and 1761 the great salubrity of the climate of Habana and the absence of epidemic diseases at that port were noted. The climate is described as being peculiarly favorable to foreigners, rendering Havana a desirable residence for Europeans. This statement presents an aspect of the climatic conditions of Habana and their relation to the unacclimated foreign resident very different from the facts observed at the present time. "Although Habana is situated on the northern boundary of the Torrid Zone, it was very justly considered one of the most healthy localities on the island before its invasion in a permanent manner by the vomito negro, or yellow fever, imported from Vera Cruz in the summer of 1761." (Pezuela, vol. 3, p. 19.)

The high authority of Pezuela as a careful historian renders it unnecessary to cite other authorities to prove that yellow fever was introduced into Habana in 1761, not in 1762, as has been asserted. The authorities are numerous to prove that Habana suffered severely with yellow fever in 1762. Among these may be cited Surgeon Romay, first physician of the Habana Military Hospital, who had apparently resided in Havana since 1792. In 1797 he wrote: "Vernon's English squadron arrived, infected with yellow fever, in 1778. In July and August there arrived from Spain, because of its war with Great Britain, an army of 3,500 men, who were immediately decimated by the vomito." (Ib., vol. 3, p. 51.)

1780. On the 3d and 5th of August a large squadron brought an army of 8,000 men. "In the two following months they suffered a loss of 2,000 men with the vomito." (Ib., vol. 3, p. 52.)

1781. "The Spanish army, gathered to rescue Pensacola from the English, was attacked with yellow fever." (Pezuela, vol. 1, p. 199.)

1793. Moreau de Jonnès reports that "public documents" prove the prevalence of yellow fever in Havana in both 1793 and 1794.

1794. "On the 9th of June the squadron of Ariztizabal returned to repair damages at this port, where had arrived from Cadiz, as reinforcements, four ships, with the chief of squadron, Don José Ulloa. The vomito appeared so severely this summer that in the garrison and squadron alone 1,600 deaths occurred. It was indispensable to resort to a general levy to replace the losses on the vessels." (Pezuela, vol. 3, p. 153.)

After 1794 the first historical records of yellow fever in Habana begin in 1805. Mr. Henry Hill, United States consular agent at Habana, reported in 1806 (pp. 113–117, vol. 10, Medical Repository) that although yellow fever caused a great mortality among American seamen in 1805, yet this mortality was "not great compared with some former seasons."

Codinach, page 25, volume 1, Tratado del Vomito, Habana, 1868: "Since 1816 yellow fever has existed with more or less intensity every year in Habana, Santiago de Cuba, Matanzas, and other places on the coast of Cuba." This writer further states that from 1808 to 1816 yellow fever had stayed its ravages for lack of fuel, but that in 1816 the landing of numerous people and the arrival of successive armed expeditions became frequent, so that an epidemic broke out "as always heretofore, as fast as newcomers arrived."

Dr. J. F. Cruzado, in his "Memoria sobre la fiebre amarilla en la Isla de Cuba," 1855, writes, after a continuous residence in Santiago de Cuba, Trinidad, and Habana, dating from 1821: "Yellow fever appears in Cuba almost annually as an epidemic." Don José Fernandez de Madrid delivered an address in Habana in 1822, published in 1824, in which he stated that yellow fever was an endemic disease in Habana.

Dr. Maher (pp. 99–115, vol. 4, Bulletin de l'Académie de Méd., Paris), reporting on the epidemic of 1837, wrote that yellow fever "prevails in all years at Habana, almost from one end of the year to the other."

As far as concerns Habana, the official reports of the military hospitals in Habana and of the Cuban superior board of health prove much more than the annual prevalence of yellow fever. They show that during the 408 months from January, 1856, to January, 1880, there was one month only, viz, December, 1866, in which yellow-fever cases were not officially reported.

Historical evidence, therefore, seems clearly to demonstrate that while Habana did probably suffer from yellow-fever outbreaks in 1620, 1649–1655, yet that this disease failed until 1761 to domicile itself in Cuba. With that date reliable historical records of the disease begin. Since 1761 it has been annually present and in nearly every month of every year.

These conclusions lead to two further considerations—the prevalence of yellow fever in other places before its implantation in Cuba was effected, and the causes which, on the one hand, delayed its appearance there, and, on the other, rendered its subsequent domiciliation so continuous and disastrous.

Official statement of mortality from yellow fever in Cuba, from 1853 to 1879.

Year.	Number of deaths from yellow fever.	Year.	Number of deaths from yellow fever.	Year.	Number of deaths from yellow fever.
1853 [*]	1, 006	1863	1, 197	1873	1, 758
1854	1, 766	1864	1, 960	1874	1, 275
1855	1, 565	1865	1, 303	1875	1, 596
1856	2, 297	1866	150	1876	3, 761
1857	4, 236	1867 [‡]	1, 093	1877	5, 041
1858	3, 425	1868	866	1878	3, 280
1859	2, 277	1869	3, 660	1879	1, 146
1860	729	1870	2, 983		
1861 [†]	1, 813	1871	2, 402	Total	55, 917
1862	2, 224	1872	3, 260		

[*] Population, 1,023,743, of whom 479,490 were whites.

[‡] Population, 1,426,475; white, 833,157.

[†] Population, 1,396,470; white, 793,484.

Causes of the insanitary condition of Cuban ports.

These causes may be stated as follows:

An equable, warm, damp climate, in the highest degree favorable to vegetable decomposition, animal putrefaction, and the growth of living organisms; the existence of swamps and stagnant pools; inadequate supply of water, defective in quality for drinking and deficient in quantity for purposes of cleanliness; inadequate drainage and sewerage system, which causes general subsoil and house moisture; polluted harbors, frequented by filthy ships, and a dense population. These conditions maintain gross and constant vitiation of air and water. They are present in greater or less degree in all Cuban ports, but exist in their highest state of intensity in Havana. Following is a list of Cuban ports of entry, in the order of their importance to American commerce: Habana, Matanzas, Cardenas, Cienfuegos, Sagua, Baracoa, Caibarien, Trinidad, Santiago de Cuba, Guantanamo, Manzanillo, Nuevitas, Gibara, Santa Cruz, Zaza.

Habana.—A description of this port is given in another place.

Matanzas.—Founded in 1693. Present population, 37,147. Death rate, approximate, 144.52. The harbor is of the first-class; it is about 3 miles wide at its entrance and 1¼ miles wide at the anchorage ground, which is 1 mile from shore. In view of the proposals to rectify the insanitary condition of the harbor of Habana by means of canals, the following facts with regard to the harbor at Matanzas deserve consideration: It is a large body of water as compared with the harbor of Habana, and it receives the refuse from a town only one-fifth the size of Habana. Again, the entrance to the harbor is its widest and deepest part, thus permitting free ingress and egress of water. Three rivers empty into it and play an important part in freshening the waters of the harbor. The shipping, though not infected with yellow fever as often as in the harbor of Habana, has frequently suffered disastrously. Matanzas has the reputation of having long suffered annually from yellow fever. The earliest positive date of its occurrence is 1828, but there is reason to believe that yellow fever was annually present there long anterior to that date. Statistical data are difficult to obtain and unreliable, but sufficient information has been obtained to show that yellow fever is habitually present at Matanzas.

Cardenas.—Founded in 1828. Population, 19,784. This is one of the most flourishing towns on the island, probably owing to the large number of Americans engaged in business there. It is situated directly on the Bay of Cardenas and is connected with the main railway system of the island. The sanitary conditions are unusually bad. The center of population is only 4 feet above the sea, so that a very large proportion of the people live within 4 feet of subsoil water. The Bay of Cardenas is 12 miles long and 18 wide, but so shallow that the anchorage ground is about 2 miles distant from shore. American vessels generally lie at the distance of a mile from the wharves. Yellow fever has prevailed annually in Cardenas since 1836. It is endemic, and appears as soon as commerce crowds the town with unacclimated persons; in other words, with the material for an epidemic outbreak. The shipping in the harbor suffers little from yellow-fever infection, owing to the distance from shore at which vessels anchor and the great efforts made by ships' captains to keep their crews on board ship.

Cienfuegos.—Founded in 1819. Destroyed by a hurricane and rebuilt 1825. Population, 20,218. This port lies 189 miles southeast of Habana, and is connected with the main railroad system of the island. The natural drainage of the town is excellent, but at least one-half the population live on ground 15 feet or less above the sea level, and one-third live in localities where the subsoil water is only 3 to 6 feet from the surface. Yellow fever is considered as an epidemic—that is, that its poison is annually and habitually present. This appears to have been the case from an early period in the history of the place. In 1878 Cienfuegos suffered from a violent epidemic outbreak of yellow fever, which was especially severe in the shipping. On examination it will be found that in those years in which yellow fever is reported as not prevalent the number of the susceptible population is small.

Sagua la Grande.—Founded in 1817. Population, 18,553. This town has been a port of entry since 1844. It has no inclosed harbor, but a roadstead protected by islands. This roadstead is shallow, its greatest depth, at a distances of 2½ miles from shore, being 15 feet. The anchorage ground is therefore so remote from the shore that the danger of infection is comparatively small. The board of health reports that yellow fever prevails every year from July to October at Sagua. On September 29, 1879, the bark *Clara E. McGilvery* arrived at Philadelphia infected with yellow fever, having sailed from Sagua September 22. This bark had, however, been at Matanzas from August 19 to 22.

Baracoa.—Founded in 1512. Population, 5,095. This town was the first settlement made by the Spaniards in Cuba, and is the most eastern seaport of any note on the island. It is the most important port in the fruit trade. A trimonthly line of steamships touches at Baracoa, connecting it with the chief northern ports and the southern port of Santiago de Cuba. Yellow fever has never become domiciled in Baracoa, the only severe epidemic having occurred in 1873–1878. The slight prevalence of yellow fever there is not, however, due to absence of the usual insanitary conditions, but is probably referable to the comparative isolation of Baracoa from habitually infected ports.

Caibarien.—Founded in 1822. Population, 5,670. This town is located on a former mangrove swamp at the mouth of the Caibarien River, and is only about 3 feet above the level of the sea. It has no harbor, only a shallow roadstead. Vessels anchor at the key or little Island of Francis, some 25 miles southeast of Caibarien. The authorities state that yellow fever is not indigenous, but that it occurs only in certain years, and becomes prevalent only when troops or other unacclimatized persons are present in considerable numbers in the town.

Trinidad.—Founded in 1514. Population, 17,990. This town, situated about 45 miles southeast of Cienfuegos, is reported to be the healthiest on the Island of Cuba. It is built on the side of a mountain and is exposed to both mountain and sea breezes. The anchorage in the bay is not very good, the water being so shallow as to necessitate the lading of vessels by lighters, unless the vessel is of very light draft. Yellow fever prevails every year, but it is not known whether the disease is indigenous or imported.

Cuba, or Santiago de Cuba.—Founded in 1514. The famous Hernando Cortez was its first mayor. Population, 40,835. This town is one of the most noted yellow-fever centers on the island. The disease has certainly prevailed annually since 1851, and probably very many years previous to that date. The most reliable data in regard to the history of yellow fever in Santiago de Cuba show that the disease was first recognized there in 1745. The board of health reports that "yellow fever is endemic, varying in intensity with the season, and especially with the number of the unacclimated." It prevails with great intensity in the harbor. The local conditions of the city are reported as in the highest degree insanitary.

Guantanamo.—Founded in 1843. Population, 8,386. This town is in the province of Cuba and about 40 miles from the city of Santiago de Cuba. It is designated a port of entry, but it is, in fact, about 7 miles from the sea, the actual seaport being the village of Caimanera, located on the west bank of the Bay of Guantanamo, and connected with the town of Guantanamo by a railroad. The harbor is very deep, permitting vessels of the largest size to enter safely within close proximity to the shore. As a port of entry Guantanamo is of slight importance, and is visited by only about thirty American vessels annually. These are presumably engaged in the coffee trade, the district of Guantanamo being now the chief coffee-raising section of Cuba. Yellow fever is believed to be indigenous to this place. Shipmasters find that their crews suffer from May to September.

Manzanillo.—Founded in 1784. Population, 13,480. This town is the seaport of Bayamo and Jiguani. It is reported to be unhealthy and exceedingly unattractive in appearance. It is of little importance as a port of entry for American vessels. The Cuban charts indicate that the harbor is shallow, a depth of 30 feet being marked 3 miles from shore.

Nuevitas.—Founded in 1513, but of little consequence until 1819. Population, 4,466. This town is chiefly important as being the seaport of Puerto Principe, the largest inland town of Cuba. The harbor is the second in size on the coast of Cuba, being 57 square miles in extent. Two rivers empty into it. It is, however, shallow, though a harbor of the first-class. On official charts a depth of 17 feet is marked nearly 1 mile distant from town, and 26 feet more than 2 miles, so that foreign vessels are obliged to anchor far from the town; hence the danger of infection is comparatively slight. Yellow fever prevails annually in the town from July to November. It is believed to be indigenous and not imported. Yellow fever is of rare occurrence on board American vessels.

Gibara is a modern town in the province of Cuba, and is the seaport of the important inland town of Halguin. As a port of entry it is of so little consequence that it is not visited by more than five to ten American vessels annually. The harbor is so shallow that only coasting vessels can enter it. Vessels are obliged to anchor at a distance from shore and are laded by lighters. Yellow fever is indigenous.

Santa Cruz is an insignificant port on the southern coast, having a population of about 1,000. It is stated to have been a port of entry since 1838, but it is of almost no importance to American shipping. From the meager reports received yellow fever appears to be constantly present.

Zaza.—This port, situated about 25 miles southeast of Trinidad, is, after Santa Cruz, the port of least importance to American shipping. The harbor is very small, and, according to the chart, so shallow that 12 feet of water is marked outside of the harbor and at the distance of a mile from the town. Yellow fever is not indigenous, but imported.

SUMMARY.

Yellow fever at ports of entry.

1. *Habana.*—Annual prevalence since 1761. It is the chief center of infection and most dangerous to shipping.

3. *Matanzas.*—Annual prevalence certainly since 1828, and probably from a much earlier date. An important center of infection, but less dangerous to shipping than Havana.

3. *Cardenas.*—Annual prevalence certainly since 1836. Founded in 1828. It is an important center of infection, but not specially dangerous to shipping, because of the distance at which vessels anchor from the shore.

4. *Cienfuegos.*—Annual prevalence since 1839, at least. Founded 1819–1825. It is a dangerous center of infection, but, like Matanzas, has a large harbor and is less dangerous than Habana to the shipping.

5. *Sagua.*—Some cases of yellow fever occur annually, but vessels are very rarely infected, as these anchor several miles distant from the coast, and Sagua is 10 miles inland.

6. *Baracoa.*—Yellow fever occurs occasionally as an epidemic, but is not annually endemic.

7. *Caibarien.*—Cases of yellow fever occur frequently, but not every year. Very little danger to vessels, as these anchor many miles distant from shore.

8. *Trinidad.*—Annual prevalence certainly since 1838, and probably longer. The harbor is not believed to be especially dangerous to vessels.

9. *Cuba (Santiago de).*—Annual prevalence certainly since 1851, and probably very much longer. It is a noted center of infection, and its small harbor is very dangerous to shipping. Next to Habana, it is probably the most dangerous port to shipping in the whole island.

10. *Manzanillo.*—Annual prevalence. It is in constant communication with Santiago de Cuba, Trinidad, and Cienfuegos. As vessels anchor in the open sea, several miles from shore, they probably suffer little.

11. *Nuevitas.*—Annual prevalence. Vessels anchor a mile or more distant from shore, and are in little danger.

12. *Guantanamo.*—Annual prevalence. The town is about 7 miles from the harbor, and vessels are probably little exposed to infection.

13. *Gibara.*—Cases of yellow fever do not occur every year. Vessels anchor at a distance from shore.

14. *Zaza.*—Cases of yellow fever do not occur every year. Vessels are probably in little danger.

15. *Santa Cruz.*—Cases of yellow fever occur in most, but not all, years. Vessels anchor far from shore, and are in little danger.

Ports of the United States trading direct with Cuba.

Apalachicola, Fla.; Baltimore, Md.; Barnstable, Mass.; Beaufort, S. C.; Boston, Mass.; Bridgeton, N. J.; Brunswick, Ga.; Charleston, S. C.; Wilmington, Del.; Falmouth, Mass.; Fernandina, Fla.; Galveston, Tex.; Georgetown, D. C.; Georgetown, S. C.; Key West, Fla.; Machias, Me.; Mobile, Ala.; New Orleans, La.; Newport News, Va.; New York, N. Y.; Passamaquoddy, Me.; Perth Amboy, N. J.; Pensacola, Fla.; Philadelphia, Pa.; Portland, Me.; St. Johns, Fla.; St. Marys, Ga.; Savannah, Ga.; Tampa, Fla.; Wiscasset, Me.

HABANA—SANITARY DESCRIPTION.

The surface soil of Habana consists, for the most part, of a thin layer of red, yellow, or black earth. Beneath this, at varying depths, often not exceeding 1 or 2 feet, is the solid rock. In the northern and modern part of the city, lying toward the seacoast rather than toward the harbor, this rock is so permeable that liquids emptied upon it quickly disappear. In the southern and larger section of the city the rock is of Cretaceous formation and is much less permeable. Sinks and other excavations rapidly fill to overflowing. About 20,000 people, or one-tenth of the population, live on land reclaimed from the sea by dumping garbage and street refuse. Much of this reclaimed land was formerly mangrove swamp. The highest point within or adjacent to Habana is 200 feet above the sea. Not more than one-fourth of the population live over 50 feet above the sea level. At least 20,000 live on land less than 7 feet, and 35,000 on sites from 7 to 13 feet above high tide. Even in houses considerably elevated above the sea level the moisture mark is seen on the walls. A heavy rain or high tide with a north wind causes inundation of the ground floor of many houses in Habana. In Cuban cities generally, the system of drainage and sewerage is bad, and Habana, the oldest and wealthiest city of the island, is no exception to the rule. Messrs. Ariza and Herrera reported (1886), "Habana has no sewers, save in a few principal streets. These have been built without reference to a general plan. They are seldom cleaned, are generally obstructed, and exhale offensive odors. The greater part of the water of the city empties through the streets into the harbor or the sea. The quantity flowing into the city is comparatively small."

More than two-thirds of the population live in densely crowded sections of the city, where the average house lot does not exceed 27 by 112 feet in dimensions and where all the local conditions are in the highest degree insanitary. Comparison of the statistics of other cities shows that more than three-fourths of the population of Habana live in the most densely populated localities of the world. A tropical climate intensifies this enormous evil.

The harbor of Habana.

The total extent of the harbor of Habana, including the entrance channel, is 2,470 acres. Its actual available area is 2,005 acres, taking the hard beach as the limits. The part actually covered by water is 1,482 acres. More than one-fourth of what should be the harbor, or 543 acres, is made land, for the most part a swamp. The true shore, or the actual bounds of the harbor, is only 13⅗ miles in extent. Of this more than a third part is inaccessible marsh, leaving only 8⅔ miles, less than half the total length, of protected and accessible shore. The circumference of the space covered by water over 8 meters deep is only $6\frac{1}{5}$ miles.

The zone of marshes, swamps, lagoons, pools, and shallows which surrounds a great part of the beach presents every condition that is dangerous to health. It abounds in organic matter, the rotten detritus of which insensibly raises the bottom of the harbor and is augmented every year. Aided by alternating wet and dry seasons, high temperature, and the mixture of fresh and salt marsh water, these swamp lands generate miasma, which is carried without interruption to the city, there being no woods between the swamps and the city to intercept marsh effluvia.

Plans proposed for the sanitation of Habana Harbor.

The sanitarians and engineers of Habana have suggested many plans for checking the filling up of the harbor and correcting the insanitary conditions of the port. From the beginning of the past century dredging has been carried on. Between 1771 and 1777 a service of six pontoons and six lighters was in operation.

This service was increased from time to time, and in 1833 a steam dredger was added. Dredging is, however, open to the objection that it turns up and exposes to the germinating influence of light and heat a great mass of decomposing organic matter. The tide in this latitude is so sluggish that it has not force sufficient to scour out the bottom of the harbor or to carry out to sea the enormous quantity of sediment which the basin receives from the crumbling of the banks, the sewerage discharge of the city and the suburban villages, and the garbage not only from dwellings, but from slaughterhouses.

It has been proposed to open a wide and deep canal from the Christiana Bridge to the creek of San Lazarus for the purpose of establishing communication between the bottom of the harbor and the sea. It is true that the intertropical currents at this point have not the strength and constancy of those on the coast of other islands of the Antilles, but there is always enough lateral swing to prevent the harbor filling up if the water is provided with a means of issue through the canal. To fulfill its purpose the canal should be at least 12 meters broad and from 8 to 10 feet deep, and its sides should be lined with stone.

Another canal has been proposed, to run along the east side of the harbor from Tricomia Creek to the sea, for the purpose of utilizing the lateral currents of the harbor for cleansing the bottom. A third canal has been suggested, the purpose of which is to give free access to the waters of the Gulf, which, it is believed, would scour out the bottom of the harbor. The execution of this last-named plan would necessitate a most complicated system of locks and sweeping currents. Such a system has been found available for maintaining artificial harbors at places where the tides are high. It seems hardly applicable to the harbor at Habana. It is stated by the advocates of this system that the Gulf Stream current, which flows along the immediate coast at the rate of 4 or 5 miles an hour, could be seized at some projecting point of the coast very near to Habana, or caught by a wing dam and conducted into the harbor.

It has also been proposed to turn the Almendares River into the harbor for the purpose of using its current to wash out the sediment from the bottom of the harbor. In this connection it should be observed that the volume of this river does not exceed 4 or 5 cubic meters a second. The Almendares and the Martin Perez and Luyano, which empty into the harbor, are too inconsiderable in volume to make a current sufficiently strong to carry away the sediment deposited on the bottom. With regard to the canal drainage proposed, it may be observed that if at the extremity of the harbor of Habana the water was at a considerable height above the level of the sea at the little bay of St. Lazarus, so that a canal could be dug with a steep descent from the first point to the second, a draining current from the harbor might be established, but as there is no such elevation, and the harbor may be considered as a continuation of the North Atlantic, the canal would only duplicate the communication already existing between two portions of the same body of water. Without tide and a volume of fresh water emptying into the harbor, the canal and the sea on the north shore would constitute one and the same circuit of still water, which would remain at the same level.

Other suggestions for preventing the filling up of the harbor have been made on a totally different line. Don Erminis Leyva proposed the building of a railway, from Regla to Talliapiedra, on the shore of the harbor, thus filling up the marshy places on the land side. Another plan, favored and indorsed by the Royal Academy of Physical and Natural Sciences, is to inclose with walls and revetments and fill up the marshy belt or low land which surrounds the greater part of the harbor. The academy also insists on the necessity of planting trees around the basin of Habana, to prevent the descent of mud, which tends to fill up the harbor. It further advises, as general sanitary measures, the furnishing of an adequate and pure water supply, the establishment of a system of underground sewerage, the suppression of wells, sinks, and privy vaults, and the extensive planting of trees in and about the city of Habana.

MORTALITY STATISTICS, HABANA.

Reported by Sanitary Inspector Burgess.

Number of deaths from yellow fever, as taken from the certificates of death in Habana Cemetery, during the ten years ending December 31, 1894.

Years.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1885	6	3	2	2	4	4	15	34	35	43	23	7	178
1886	4	6	0	2	2	14	34	41	39	17	14	9	182
1887	6	6	8	21	82	124	104	74	41	35	24	15	540
1888	9	7	14	24	27	38	79	116	63	48	38	26	489
1889	34	12	19	12	19	49	63	84	47	26	28	15	408
1890	11	4	4	12	26	45	67	64	31	32	23	12	331
1891	11	4	4	5	7	43	65	67	61	49	26	17	359
1892	15	10	1	8	7	13	28	69	74	53	53	33	364
1893	17	7	5	8	24	74	122	99	70	47	33	11	517
1894	8	4	2	5	17	33	73	63	68	40	18	27	358
Total	121	63	59	99	215	437	650	711	529	390	280	172	3,726

It will be seen by the above table that the three months of the year in which there were most deaths were July, August, and September, and the three least were February, March, and April, the least of all being in March, and the most of all being, as a rule, in August, though not always.

I will now add the mortality from yellow fever during the year 1884, it being the year previous to the ten years (last), and interesting on account of the large number of deaths from it.

January	30
February	16
March	9
April	34
May	57
June	68
July	131
August	102
September	42
October	24
November	9
December	7
Total	529

The above mortuary statistics of yellow fever in Habana were taken daily or frequently (never exceeding a week) by myself or assistants from the whole number of death certificates sent to the cemetery, and are as near correct as anything can be in this place. I need not add that this work is always attended in this country by considerable expense—that is, to get the data day after day, week after week, month after month, and year after year—to illustrate how different this country and people are from our own.

Respectfully submitted.

D. M. Burgess,
United States Sanitary Inspector, Marine-Hospital Service.

To the Surgeon-General Marine-Hospital Service.

HABANA THE CHIEF SOURCE OF YELLOW-FEVER INFECTION.

It will be seen by the table, which closes this chapter on yellow fever, that during the present century, from 1800–1894, there have been but seven years in which yellow fever has not visited the United States. Eighty-seven years our shores have been infected. Twenty-three of these years the records show that the infection came from Habana. Twelve of these years the records only show the West Indies as a source of infection. How many of these twelve infections from the West Indies came from Cuba or Habana is unknown. One year the infection came from Santiago de Cuba. Another year the source is given as Cuba only. Two years it came from Vera Cruz; one year from St. Thomas, and one year from Honduras.

Since 1862, more than a quarter of a century ago, our shores have been infected with yellow fever in each of twenty-six years. The source of the infection is known positively for nineteen years. For the remaining seven years the source is as yet undetermined. Of the 19 yearly visitations 16 have been traced definitely to Habana, 2 to Cuba and the West Indies, and 1 to Honduras. The records further show that in some years a number of places in the United States have been infected independently of one another from Habana, as, for example, in 1862, Key West, Fla., and Wilmington, N. C.; in 1871, Cedar Keys, Tampa, and New Orleans, and in 1873, New Orleans and Pensacola.

The infected wharves of Habana.

An examination of all the quarantine records for the last few years with reference to the source of yellow-fever infection arriving at the several stations is impracticable, but a partial examination has been made, which is sufficiently significant, as may be seen by the subjoined tables, which show that during the last quarantine season, 1894, there were 11 cases of yellow fever taken from 6 vessels arriving at the Dry Tortugas quarantine station. All of these vessels came from the wharves in Habana. In the year previous at Ship Island, 1893, there were 5 vessels which arrived at the Gulf quarantine station, having had 8 cases of yellow fever on board, and all of these 5 vessels lay at the wharves with the exception of one, which lay very near a vessel which had been at the Tallapiedra wharf, and was infected with yellow fever.

The following are the tables:

Dry Tortugas Quarantine, June, 1893, to September 3, 1894.

Name of vessel.	Registry.	Number of cases.	Where from.
Schooner H. J. Powell	American	1	Tallapiedra wharf, Habana.
Bark Albatross	British	2	Do.
Schooner John R. Bergen	American	3	West Regla wharf, Habana.
Brig Electric Light	do	1	Tallapiedra wharf, Habana.
Schooner L. V. Place	do	3	West Regla wharf, Habana.
Schooner Sarah A. Fuller	do	1	San José wharf, Habana.
Total		11	

Ship Island Quarantine, 1893.

Name of vessel.	Date.	Number of cases.	Remarks.
Schooner R. Spofford	June —, 1893	1	Tallapiedra wharf.
British bark Icarus	June 20, 1893	3	Do.
American schooner John C. Smith.	July 11, 1893	1	Lay 21 days in open bay, but very near a vessel which came from Tallapiedra wharf infected with yellow fever.
American ship Fawn	Aug. 18, 1893	1	At Ship Island.
		2	At Habana, lay at Tallapiedra wharf.
Norwegian bark Eglantine	Sept. 8, 1893	1	San José wharf.

Special danger to which American seamen are subjected.

Two of these wharves, namely, the Tallapiedra and the San José are particularly dangerous, the latter being practically a continuation of the former. Under this latter empties the sewer from the military hospital, where the yellow fever patients of the army are treated. It has been said that no vessel has ever been tied to this wharf with a nonimmune crew on board without yellow fever appearing among them. So well known is this as a danger point that it is called "dead man's hole" by ships' captains; and so great is the danger of being obliged to tie up at this wharf that captains of American vessels have been known to pay for being permitted to discharge in the open bay, the payment being made by deduction from freight charges amounting to $200 or $300. Captains of American vessels have been heard to assert that the United States Government should not allow vessels to come to these wharves with this certainty of a nonimmune person being attacked with yellow fever while lying there. The cruelty to the American sailor involved calls loudly for some action in the matter. An American sailor shipping, say, at New York, on a vessel bound for Habana, may be wholly unaware of the danger to which his life is exposed when he signs the shipping articles. The vessel being chartered to unload at the wharves, the sailor finds himself in a veritable death trap. The laws of the United States forbid his desertion, and he is obliged to remain aboard in this dangerous locality, usually a long period of time, with almost a certainty of contracting yellow fever. A sailor arriving at this port on a Spanish vessel may take his discharge, and thus escape the danger, for this is a Spanish port.

Moreover, if a Spanish sailor is taken sick while his vessel is at this wharf he may be discharged. If a British sailor is taken sick, British law permits the captain to simply pay his wages to date and discharge him, the British consul having a fund at his disposal for meeting the expense of treatment in hospital, said fund being provided by the English board of trade. But if a sailor is taken sick on an American vessel, before the master can depart, leaving the sailor in the hospital, he must deposit a sum of money sufficient to meet all his possible expenses, and frequently this amount is $200 or $300. As a consequence, an American master is loth to leave a patient suffering with fever which may be or may not prove to be yellow fever. He therefore brings the sailor off, the case develops into yellow fever, and is brought to the shores of the United States, and forms one of the most fruitful sources of danger to our Southern seacoast cities.

Now, why do American vessels go to these wharves? Simply because the consignees or men interested in receiving the cargo demand it. The consignees wish the vessel to come to the wharf, first, to avoid the cost of lightering, and, second, to benefit the wharf owner, who may be at the same time one of the consignees. If the "charter party" of American vessels were made to read to an anchorage in Habana harbor the difficulty would be obviated.

The following report upon the danger from these wharves has been received from Sanitary Inspector Burgess:

Report of Sanitary Inspector Burgess on the infected wharves of Habana.

HABANA, ISLAND OF CUBA, *May 25, 1895.*

SIR: Mercantile shipping visiting the nearly landlocked harbor of Habana either discharges and loads in the open bay or at or near the wharves, of which latter the port has several.

As long as vessels remain in the open bay, not allowing their men to go ashore, and holding as little intercourse with the city as possible, they are to a great extent exempt from invasion by yellow fever, as is the case with the large number of iron steamers which come here. But for many months during the year, the moment they go to wharves, particularly wooden sailing vessels, all this changes and many become infected with the dread disease, and, for very good reasons, particularly on the Habana side. There the wharves are not only a continuation of the city, but they are in a very much worse sanitary condition than it is, for the sewers of the town debouche right under them, the timbers which support them entrapping all manner of filth and rendering what little tide-water current there might be entirely inefficient for any cleaning purpose.

Local conditions and influences also along the wharves on the city side doubtless make some of them more dangerous than others, as is the case with the Tallapiedra wharf, which, in addition to its close proximity to the ever-infected military hospital with its dangerous sewerage, has all the liquid filth from all the slaughter houses of the city passing slowly under and near it. This is the most dangerous wharf here, and is the one to which many American and British vessels go to discharge lumber.*

San José wharf, with its hospital at either end and sewer from military barracks, as also city sewers emptying under it, is nearly as bad, and scores of vessels have been infected there, and others will be if they go there.

The longer line of Caballeria wharf, with its subdivisions, receives much of the city sewerage under it, and formerly, when American sailing vessels went there they suffered terribly by yellow fever.

Even this past winter, in the month of December, an Italian bark had several cases of yellow fever aboard while there. Spanish sailing vessels are the ones that go there most of late years, on account, probably, of proximity to the custom-house, for the things they carry, and there they suffer very much from yellow fever.

All wharves on Habana side should be condemned and not visited during the quarantine season—Tallapiedra being the most dangerous, San José possibly next, and then Caballeria very close behind.

The wharves on the opposite side of harbor from Habana, as at Casa Blanca and Regla, are not as dangerous as those on the Habana side, but there are two points which sometimes become infected—one being at Casa Blanca under the fortifications called the Cabanas, and where the sewerage from that fort empties, and the other at West Regla, in a bight or corner called the Quinto.

Very respectfully, your obedient servant,
D. M. BURGESS,
Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

The following additional report, with statistics, has been compiled by Sanitary Inspector Burgess, showing the points or places visited by vessels in Havana harbor and the danger to shipping and to the United States, due to the condition of the wharves on the Habana side of the harbor.

It may be added that the reason yellow fever has not more greatly increased among shipping in Habana is because formerly more cargoes were carried by sailing vessels, which discharged and loaded at the wharves. Now these cargoes are more frequently brought in iron steamers, which do not go to the wharf, partly because of yellow fever and because in the bay with lighters they can handle crews better, keep them sober, and load and unload more quickly.

Statistical report of Sanitary Inspector Burgess, showing the relative frequency of infection of vessels in the open bay and at wharves.

HABANA, ISLAND OF CUBA, *May 25, 1895.*

SIR: The statistical tables in regard to points or places visited by vessels in this harbor and which afterwards went to ports in the United States, as also their infection or noninfection by yellow fever, which I have the honor of forwarding you, comprise only those vessels which took the United States bill of health from June 1, 1883, to December 31, 1894.

There were quite a number of vessels along through the years previous to the period of the "Act of Congress granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," which did somewhat as they liked about taking a bill of health.

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* Tallapiedra wharf is vulgarly called by sea captains "the dead man's hole," on account of the large number of sailors who fall sick there with yellow fever and die.

If the captain was sure of getting a good bill of health he was anxious to have it, but if he had had any suspicious sickness aboard he would reason, Why should I take an instrument with me which will condemn me to quarantine?

This was particularly true with respect to vessels going to outlying ports to load and then to the United States. The captain would say, If I take a bill of health from Habana where I have had sickness it will expose my sanitary condition; I will therefore only take a bill of health from the last port—which may be a healthy one.

Furthermore, the statistics of old Spanish sailing vessels are sometimes defective, for with the innate disposition of the masters to deceive and conceal it might occasionally (not often) be absolutely impossible to ascertain the exact truth in regard to the results of the vessel's exposure here; for it is notorious that that class of vessels almost invariably go to the dirty wharves on the Habana side of the harbor, and, it is not necessary to say, should be treated as infected.

With the exceptions above stated the statistical reports are full and complete, and are probably as correct as any such matter can ever be.

The history of yellow fever on board of vessels during the four years previous to June, 1883, was very much as it has been since, except as then there were more sailing vessels which went to wharves on Habana side of harbor, there was more yellow fever among them.

I find it well-nigh impossible at present to report correctly on the number of American sailors which have been sick in the harbor of Habana with yellow fever, and the same is true in regard to vessels of other nationalities.

A careful perusal of the statistical report can not fail to convince one that the great source of danger to shipping and the United States from yellow fever are the wharves, especially those on the Habana side of the harbor.

Annexed you will find table of number of vessels, class and number infected, as well as points visited by them from June, 1883, to the end of year 1894, by years.

Years.	Sailing vessels.				Steamers.				American vessels infected.	
	At wharves.		In open bay.		At wharves.		In open bay.			
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	Sailing.	Steam.
1883	120	28	100	0	9	1	129	0	12	0
1884	153	2	179	1	24	0	196	0	1	0
1885	158	2	136	0	11	2	216	1	2	1
1886	142	1	92	0	34	0	301	0	1	0
1887	130	3	82	0	60	0	286	0	1	0
1888	168	12	51	1	41	0	286	0	4	0
1889	212	11	69	1	42	1	296	0	2	0
1890	199	5	76	0	36	2	427	0	0	0
1891	164	0	60	0	32	0	366	0	0	0
1892	169	2	42	1	67	0	268	0	0	0
1893	199	11	55	0	75	3	304	0	4	0
1894	225	12	61	0	82	0	409	3	6	0

Whenever anyone has been taken by yellow fever on a vessel in open bay, the cause can be traced to an infected vessel near by coming from the wharf, or in some way connected with the wharf or city.

Very respectfully,

D. M. BURGESS,

Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL MARINE HOSPITAL SERVICE,

Washington, D. C.

Inclosure.—Statistical tables.

1883.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
June.									
American	1	0	26	0	0	0	28	0	City of Washington, City of Alexandria, City of Mexico, infected from Mexico.
British	2	0	0	0	1	0	3	0	
Spanish	12	0	1	0	0	0	0	0	
Total	15	0	27	0	1	0	31	0	
July.									
American	4	3	22	0	0	0	19	0	Bark Hattie M. Bain and schooner John Swan, at San José wharf; schooner S. N. Collymore, at Tallapiedra.
British	0	0	4	0	0	0	3	0	
Spanish	17	2	0	0	0	0	3	0	Barks Cencerro and Cristina, at Caballeria wharf.
Total	21	5	26	0	0	0	25	0	
August.									
American	4	0	11	0	2	0	12	1	Steamer New Port.
British	1	0	0	0	1	0	1	1	
Spanish	8	0	0	0	1	0	0	0	
Total	13	0	11	0	4	0	13	2	
September.									
American	7	2	7	0	1	0	10	0	Barks Antonia Sala and Daring, at San Jose wharf.
British	1	0	0	0	0	0	3	0	
Spanish	7	0	0	0	0	0	0	0	
Total	15	2	7	0	1	0	13	0	
October.									
American	10	1	10	0	0	0	9	0	Barkentine José R. Lopez, at San José.
British	0	0	0	0	1	0	3	0	
Spanish	11	4	0	0	0	0	4	0	Brig Sevilla and barks Nueva Lantaro, Resuelta, and Victoria, at Caballeria wharf.
Total	21	5	10	0	1	0	16	0	
November.									
American	8	3	3	0	1	0	9	0	Schooner L. A. Edwards, bark Alice, and schooner Annie G. Milliard.
British	0	0	0	0	0	0	3	0	
Spanish	8	5	0	0	0	0	5	0	Barks Trinidad, Petronila, Catalina, Tuya, and Albagracia, at Caballeria wharf.
Norwegian	2	0	1	0	0	0	0	0	
Total	18	8	4	0	1	0	17	0	
December.									
American	10	3	12	0	0	0	9	0	Barks G. de Zaldo, Ada Carter, and Marie.
British	0	0	1	0	0	0	3	0	Barks Antonieta, Adela, Saleta, and Adelante, at Caballeria wharf.
Spanish	9	4	1	0	0	0	2	0	
Norwegian	2	0	1	0	0	0	0	0	
Total	21	7	15	0	0	0	14	0	
Total for 1883.									
American	44	12	95	0	1	0	96	1	
British	4	0	5	0	2	0	19	1	
Spanish	72	15	2	0	1	0	14	0	
Norwegian	4	0	2	0	0	0	0	0	

Inclosure.—Statistical tables—Continued.

1884.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
January.									
American	6	2	10	0	0	0	12	0	Barkentine Charles Platt and bark David Taylor.
British	3	0	1	0	0	0	5	0	
Spanish	7	0	0	0	0	0	1	0	
Austrian	1	0	0	0	0	0	0	0	
Italian	1	0	2	0	0	0	0	0	Bark Antonio D'Abundo.
German	2	0	0	0	0	0	0	0	
Norwegian	0	0	1	0	0	0	0	0	
Russian	0	0	1	0	0	0	0	0	
Total	20	2	15	0	0	0	18	0	
February.									
American	6	0	15	0	0	0	12	0	
British	1	0	5	0	0	0	3	0	
Spanish	11	0	0	0	0	0	3	0	
Norwegian	2	0	1	0	0	0	0	0	
Italian	0	0	1	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Russian	0	0	1	0	0	0	0	0	
Total	21	0	23	0	0	0	18	0	
March.									
American	5	0	13	0	0	0	13	0	
British	0	0	1	0	0	0	7	0	
Spanish	6	0	1	0	1	0	1	0	
Norwegian	2	0	0	0	0	0	0	0	
Russian	0	0	1	0	0	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Total	14	0	16	0	1	0	21	0	
April.									
American	2	0	19	0	0	0	12	0	
British	0	0	0	0	0	0	4	0	
Spanish	6	0	0	0	0	0	3	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	9	0	19	0	0	0	19	0	
May.									
American	4	1	24	0	0	0	10	0	
British	0	0	6	0	0	0	4	0	
Spanish	2	0	0	0	0	0	5	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	7	1	30	0	0	0	19	0	
June.									
American	4	0	17	0	0	0	6	0	
British	0	0	0	0	1	0	2	0	
Spanish	7	0	0	0	0	0	1	0	
Mexican	0	0	0	0	1	0	0	0	
Total	11	0	17	0	2	0	9	0	
July.									
American	4	0	17	0	0	0	12	0	
British	1	0	0	0	0	0	4	0	
Spanish	5	0	0	0	0	0	1	0	
Mexican	0	0	0	0	0	0	1	0	
Total	10	0	17	0	0	0	18	0	

Inclosure.—Statistical tables—Continued.

1884—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
August.									
American	5	0	8	0	8	0	7	0	
British	0	0	0	0	0	0	6	0	
Spanish	7	0	0	0	0	0	2	0	
Total	12	0	8	0	8	0	15	0	
September.									
American	5	0	8	0	8	0	7	0	
British	0	0	0	0	0	0	6	0	
Spanish	7	0	0	0	0	0	2	0	
Total	12	0	8	0	8	0	15	0	
October.									
American	5	0	13	0	3	0	9	0	
British	1	0	0	0	0	0	3	0	
Spanish	7	2	0	1	1	0	0	0	Barks Adelante, in open bay; Voladora and Elvira, at Caballeria wharf.
Total	13	2	13	1	4	0	12	0	
November.									
American	8	0	4	0	0	0	11	0	
British	0	0	0	0	2	0	2	0	
Spanish	1	0	0	0	0	0	3	0	
Total	9	0	4	0	2	0	16	0	
December.									
American	7	0	9	0	0	0	14	0	
British	3	0	0	0	1	0	1	0	
Spanish	3	0	0	0	0	0	1	0	
Norwegian	1	0	0	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Total	15	0	9	0	1	0	16	0	
Total for 1884.									
American	61	3	146	0	19	0	115	0	
British	9	0	13	0	4	0	47	0	
Spanish	69	2	1	0	2	0	23	0	
Norwegian	5	0	2	0	0	0	0	0	
Italian	1	0	3	0	0	0	0	0	
Swedish	2	0	0	0	0	0	0	0	
Russian	0	0	3	0	0	0	0	0	
Austrian	1	0	0	0	0	0	0	0	
Mexican	0	0	0	0	1	0	1	0	

1885.

January.									
American	9	0	6	0	0	0	11	0	
British	0	0	0	0	2	0	2	0	
Spanish	6	0	0	0	0	0	3	0	
Norwegian	2	0	1	0	0	0	0	0	
Total	17	0	7	0	2	0	16	0	

Inclosure.—Statistical tables—Continued.

1885—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
February.									
American	8	0	8	0	0	0	15	0	
British	0	0	0	0	0	0	2	0	
Spanish	3	0	0	0	0	0	1	0	
Norwegian	1	0	1	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Total	13	0	9	0	0	0	18	0	
March.									
American	7	0	19	0	0	0	11	0	
British	0	0	0	0	0	0	3	0	
Spanish	5	0	0	0	1	0	2	0	
Danish	0	0	0	0	0	0	1	0	
Total	12	0	19	0	1	0	17	0	
April.									
American	5	0	23	0	0	0	12	0	
British	0	0	2	0	0	0	0	0	
Spanish	4	0	0	0	0	0	2	0	
Italian	1	0	0	0	0	0	0	0	
Total	10	0	25	0	0	0	14	0	
May.									
American	5	0	18	0	0	0	15	0	
British	0	0	0	0	0	0	2	0	
Spanish	1	0	0	0	0	0	1	0	
Total	6	0	18	0	0	0	18	0	
June.									
American	1	0	19	0	0	0	14	0	
British	0	0	0	0	1	0	2	0	
Spanish	5	0	0	0	0	0	1	0	
Swedish	1	0	0	0	0	0	0	0	
Total	7	0	19	0	1	0	17	0	
July.									
American	5	0	12	0	0	0	17	0	
British	0	0	0	0	0	0	4	0	
Spanish	5	0	0	0	0	0	5	0	
Total	10	0	12	0	0	0	26	0	
August.									
American	2	0	2	0	0	0	11	0	
British	0	0	0	0	0	0	0	0	
Spanish	11	0	0	0	0	0	5	0	
Total	13	0	2	0	0	0	16	0	
September.									
American	9	0	11	0	0	0	7	0	
British	0	0	0	0	3	0	0	0	
Spanish	5	0	0	0	1	0	2	0	
French	0	0	1	0	0	0	0	0	
Austrian	1	0	0	0	0	0	0	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	16	0	12	0	4	0	9	0	

Inclosure.—Statistical tables—Continued.

1885—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
October.									
American	7	0	6	0	0	0	18	0	
British	1	0	0	0	0	0	0	0	
Spanish	4	0	0	0	1	0	6	0	
German	1	0	0	0	0	0	0	0	
Total	13	0	6	0	1	0	24	0	
November.									
American	10	2	4	0	0	0	19	0	Schooner F. L. Richardson and brig A. F. Pettengill.
British	0	0	0	0	2	0	1	0	
Spanish	13	0	0	0	2	0	1	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	24	2	4	0	4	0	21	0	
December.									
American	10	0	3	0	0	0	18	0	Steamer Whitney.
British	0	0	0	0	1	0	0	0	
Spanish	3	0	0	0	2	1	2	0	Steamer Alpes.
Mexican	1	0	0	0	0	0	0	0	
Norwegian	3	0	0	0	0	0	0	0	
Total	17	0	3	0	3	1	20	0	
Total for 1885.									
American	78	2	125	0	2	0	168	0	
British	1	0	2	0	9	0	16	0	
Spanish	65	0	0	0	71	1	31	0	
Mexican	0	0	0	0	0	0	0	0	
Norwegian	8	0	1	0	0	0	0	0	
Austrian	1	0	0	0	0	0	0	0	
Swedish	2	0	0	0	0	0	0	0	
Danish	0	0	0	0	0	0	1	0	
German	2	0	0	0	0	0	0	0	
Italian	1	0	0	0	0	0	0	0	
French	0	0	1	0	0	0	0	0	

1886.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
January.									
American	5	1	4	0	1	0	21	0	Schooner Jeannie Hall.
British	0	0	1	0	1	0	0	0	
Spanish	3	0	0	0	3	0	2	0	
German	1	0	0	0	0	0	0	0	
Total	9	1	5	0	5	0	23	0	
February.									
American	5	0	12	0	0	0	21	0	
British	0	0	0	0	0	0	0	0	
Spanish	6	0	0	0	1	0	1	0	
German	3	0	0	0	0	0	0	0	
Total	14	0	12	0	1	0	22	0	
March.									
American	4	0	9	0	0	0	20	0	
British	0	0	1	0	0	0	0	0	
Spanish	3	0	0	0	3	0	1	0	
German	0	0	0	0	0	0	1	0	
Norwegian	1	0	0	0	0	0	0	0	
Swedish	0	0	0	0	0	0	1	0	
Total	8	0	10	0	3	0	23	0	

Inclosure.—Statistical tables—Continued.

1886—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
April.									
American	8	0	12	0	0	0	19	0	
British	2	0	0	0	0	0	1	0	
Spanish	3	0	0	0	0	0	3	0	
German	0	0	1	0	0	0	0	0	
Norwegian	2	0	0	0	0	0	0	0	
Total	15	0	13	0	0	0	23	0	
May.									
American	8	0	8	0	0	0	21	0	
British	0	0	0	0	0	0	0	0	
Spanish	10	0	0	0	0	0	2	0	
Total	18	0	8	0	0	0	23	0	
June.									
American	8	0	10	0	0	0	20	0	
British	0	0	1	0	1	0	2	0	
Spanish	4	0	0	0	0	0	1	0	
German	1	0	0	0	0	0	0	0	
Total	13	0	11	0	1	0	23	0	
July.									
American	9	0	8	0	0	0	23	0	
British	0	0	1	0	2	0	0	0	
Spanish	5	0	0	0	0	0	1	0	
German	0	0	0	0	0	0	1	0	
Norwegian	0	0	1	0	0	0	0	0	
Total	14	0	10	0	2	0	25	0	
August.									
American	5	0	6	0	0	0	19	0	
British	0	0	0	0	2	0	1	0	
Spanish	9	0	0	0	0	0	2	0	
Total	14	0	6	0	2	0	22	0	
September.									
American	5	0	5	0	0	0	28	0	
British	0	0	0	0	1	0	1	0	
Spanish	6	0	0	0	1	0	3	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	12	0	5	0	2	0	32	0	
October.									
American	5	0	4	0	0	0	26	0	
British	0	0	0	0	1	0	0	0	
Spanish	2	0	0	0	4	0	1	0	
Total	7	0	4	0	5	0	27	0	
November.									
American	9	0	5	0	0	0	28	0	
British	0	0	0	0	2	0	1	0	
Spanish	5	0	0	0	3	0	1	0	
French	0	0	0	0	1	0	0	0	
Total	14	0	5	0	6	0	30	0	

Inclosure.—Statistical tables—Continued.

1886—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
December.									
American	9	0	4	0	0	0	28	0	
British	0	0	0	0	4	0	1	0	
Spanish	8	0	0	0	3	0	0	0	
Total	17	0	4	0	7	0	29	0	
Total for 1886.									
American	80	1	87	0	1	0	264	0	
British	2	0	4	0	14	0	7	0	
Spanish	64	0	0	0	18	0	19	0	
German	5	0	1	0	0	0	1	0	
Norwegian	4	0	1	0	1	0	0	0	
Swedish	0	0	0	0	0	0	1	0	
French	0	0	0	0	1	0	0	0	
1887.									
January.									
American	5	0	2	0	0	0	27	0	
British	0	0	1	0	5	0	0	0	
Spanish	8	0	0	0	3	0	0	0	
Norwegian	1	0	0	0	0	0	0	0	
French	0	0	0	0	0	0	1	0	
Total	14	0	3	0	8	0	28	0	
February.									
American	9	0	12	0	0	0	20	0	
British	0	0	0	0	0	0	1	0	
Spanish	7	0	0	0	3	0	0	0	
Norwegian	0	0	0	0	0	0	1	0	
Total	16	0	12	0	3	0	22	0	
March.									
American	6	0	8	0	0	0	26	0	
British	1	0	1	0	0	0	1	0	
Spanish	1	0	0	0	4	0	0	0	
Total	8	0	9	0	4	0	27	0	
April.									
American	8	0	10	0	0	0	30	0	
British	0	0	2	0	0	0	0	0	
Spanish	3	0	0	0	3	0	1	0	
German	1	0	0	0	0	0	0	0	
Total	12	0	12	0	3	0	31	0	
May.									
American	9	0	6	0	0	0	22	0	
British	1	0	1	0	1	0	0	0	
Spanish	7	0	0	0	3	0	2	0	
Italian	2	0	0	0	0	0	0	0	
Total	19	0	7	0	4	0	24	0	
June.									
American	7	0	8	0	0	0	20	0	
British	1	0	0	0	2	0	1	0	
Spanish	3	0	0	0	2	0	2	0	
Total	11	0	8	0	4	0	23	0	

Inclosure.—Statistical tables—Continued.

1887—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
July.									
American	3	2	2	0	0	0	20	0	Bark Carrie E. Long and brig John Swan.
British	1	0	0	0	1	0	1	0	
Spanish	6	0	0	0	3	0	0	0	
Total	10	2	2	0	4	0	21	0	
August.									
American	0	0	1	0	0	0	20	0	
British	0	0	0	0	4	0	3	0	
Spanish	5	0	0	0	3	0	0	0	
Total	5	0	1	0	7	0	23	0	
September.									
American	3	0	3	0	0	0	22	0	
British	0	0	0	0	2	0	0	0	
Spanish	2	0	0	0	3	0	1	0	
Total	5	0	3	0	5	0	23	0	
October.									
American	3	0	3	0	0	0	22	0	
British	0	0	0	0	2	0	0	0	
Spanish	2	1	1	0	3	0	1	0	Brig Sevilla.
Total	5	1	4	0	5	0	23	0	
November.									
American	4	0	4	0	0	0	22	0	
British	0	0	1	0	5	0	0	0	
Spanish	10	0	0	0	4	0	0	0	
Total	14	0	5	0	9	0	22	0	
December.									
American	2	0	2	0	0	0	22	0	
British	1	0	0	0	1	0	0	0	
Spanish	8	0	0	0	3	0	0	0	
Total	11	0	2	0	4	0	22	0	
Total for 1887.									
American	59	2	69	0	0	0	273	0	
British	5	0	6	0	21	0	6	0	
Spanish	62	1	1	0	37	0	6	0	
Norwegian	1	0	0	0	0	0	0	0	
French	0	0	0	0	0	0	1	0	
German	1	0	0	0	0	0	0	0	
Italian	2	0	0	0	0	0	0	0	

1888.

Nationality.	Sailing vessels, at wharves, Number.	Infected.	Sailing vessels, in open bay, Number.	Infected.	Steamers, at wharves, Number.	Infected.	Steamers, in open bay, Number.	Infected.	Name of vessel infected.
January.									
American	2	0	2	0	0	0	25	0	
British	0	0	1	0	0	0	0	0	
Spanish	2	0	0	0	3	0	0	0	
Italian	1	0	0	0	0	0	0	0	
German	0	0	1	0	0	0	0	0	
Total	5	0	4	0	3	0	25	0	

Inclosure.—Statistical tables—Continued.

1888—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
February.									
American	10	0	8	0	0	0	25	0	
British	0	0	1	0	0	0	1	0	
Spanish	3	0	0	0	3	0	1	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	14	0	9	0	3	0	27	0	
March.									
American	11	0	10	0	0	0	28	0	
British	0	0	0	0	1	0	0	0	
Spanish	3	0	0	0	3	0	2	0	
Total	14	0	10	0	4	0	30	0	
April.									
American	7	0	1	0	1	0	26	0	
British	3	0	0	0	0	0	1	0	
Spanish	9	0	0	0	3	0	0	0	
German	1	0	0	0	0	0	0	0	
Total	20	0	1	0	4	0	27	0	
May.									
American	24	0	3	0	0	0	23	0	
British	0	0	0	0	1	0	1	0	
Spanish	2	0	0	0	3	0	0	0	
French	0	0	0	0	1	0	0	0	
Norwegian	1	0	0	0	0	0	0	0	
Total	27	0	3	0	5	0	24	0	
June.									
American	10	0	3	0	0	0	22	0	
British	1	0	0	0	0	0	0	0	
Spanish	6	0	0	0	3	0	1	0	
Total	17	0	3	0	3	0	23	0	
July.									
American	11	2	1	0	0	0	19	0	Brig Tenerife and barkentine Joe Read.
British	0	0	1	0	0	0	0	0	
Spanish	3	0	0	0	2	0	1	0	
Total	14	2	2	0	2	0	20	0	
August.									
American	1	0	2	0	0	0	22	0	
British	1	0	0	0	1	1	1	0	Steamer Ardangoem (1 case).
Spanish	8	3	0	0	5	0	3	0	Barks Flora (1 case), Alejandro Bosch (1 case), and Encamacion (2 cases).
German	1	0	0	0	0	0	0	0	
Italian	1	1	0	0	0	0	0	0	Bark Biágino (5 cases).
Total	12	4	2	0	6	1	26	0	
September.									
American	3	1	3	0	0	0	21	0	Bark Nereid (1 case).
British	0	0	0	0	0	0	0	0	
Spanish	8	4	0	0	3	0	0	0	Barkentine Conebra Ballester (6 cases), barks America (6 cases), Guadalquiver (3 cases), and Trinita (6 cases).
Total	11	5	3	0	3	0	21	0	

Inclosure.—Statistical tables—Continued.

1888—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel inspected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
October.									
American	5	0	3	0	0	0	21	0	
British	2	0	0	0	3	0	0	0	
Spanish	7	0	0	0	3	0	1	0	
French	0	0	0	0	0	0	1	0	
Total	14	0	3	0	6	0	23	0	
November.									
American	5	0	8	7	0	0	21	0	Ship Portland Lloyds (15 cases).
British	0	0	0	0	1	0	0	0	
Spanish	6	1	0	0	3	0	0	0	Barkentine Amalia (1 case).
Total	11	1	8	7	4	0	21	0	
December.									
American	10	0	1	0	0	0	22	0	
British	0	0	0	0	1	0	0	0	
Spanish	3	0	0	0	1	0	0	0	
Norwegian	0	0	0	0	3	0	0	0	
Total	13	0	1	0	5	0	22	0	
Total for 1888.									
American	61	3	45	0	1	0	175	0	
British	7	0	3	0	8	1	40	0	
Spanish	60	8	0	0	33	0	9	0	
Italian	2	1	0	0	0	0	0	0	
German	1	0	1	0	0	0	0	0	
Norwegian	1	0	0	0	3	0	0	0	
French	0	0	0	0	0	0	1	0	
1889.									
January.									
American	12	0	5	0	0	0	23	0	
British	1	0	1	0	0	0	2	0	
Spanish	7	0	0	0	3	0	1	0	
Total	20	0	6	0	3	0	26	0	
February.									
American	12	0	6	0	0	0	21	0	
British	1	0	0	0	2	0	1	0	
Spanish	5	0	0	0	4	0	1	0	
Total	18	0	6	0	6	0	23	0	
March.									
American	16	0	10	0	0	0	22	0	
British	0	0	0	0	0	0	0	0	
Spanish	3	0	0	0	3	0	1	0	
Total	19	0	10	0	3	0	23	0	
April.									
American	23	0	6	0	0	0	24	0	
British	2	0	1	0	0	0	0	0	
Spanish	7	0	1	0	3	0	1	0	
Norwegian	1	0	0	0	0	0	0	0	
Austrian	0	0	0	0	0	0	1	0	
German	0	0	0	0	0	0	1	0	
Total	33	0	8	0	3	0	27	0	

Inclosure.—Statistical tables—Continued.

1889—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
May.									
American	20	0	10	0	0	0	22	0	
British	0	0	0	0	1	0	0	0	
Spanish	7	0	0	0	3	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Total	28	0	10	0	4	0	22	0	
June.									
American	11	0	2	0	0	0	22	0	
British	1	0	1	0	1	0	1	0	
Spanish	4	0	0	0	3	0	1	0	
Total	16	0	3	0	4	0	23	0	
July.									
American	6	0	4	0	0	0	20	0	
British	0	0	0	0	4	0	2	0	
Spanish	5	0	0	0	1	0	5	0	
Total	11	0	4	0	5	0	27	0	
August.									
American	3	0	1	0	0	0	19	0	
British	1	0	0	0	1	0	0	0	
Spanish	6	0	0	0	1	0	4	0	
Total	10	0	1	0	2	0	23	0	
September.									
American	6	0	2	0	0	0	19	0	
British	1	1	0	0	1	0	0	0	Bark Jane Law (6 cases).
Spanish	6	3	3	0	3	1	1	0	Steamer Baldomero Iglesias (6 cases), barks Anibal (6 cases), Esmeralda (6 cases), and Teresa Figueras (1 case).
Total	13	4	5	0	4	1	20	0	
October.									
American	4	1	2	0	0	0	21	0	Schooner Robert Ruff (1 case).
British	0	0	0	0	3	0	2	0	
Spanish	12	5	0	0	1	0	4	0	Barks España (1 case), Concepcion (1 case), Verdad (1 case), Segundet (1 case), and Nueva Paula (1 case).
Total	16	6	2	0	4	0	27	0	
November.									
American	6	1	5	0	0	0	22	0	Schooner Palos (1 case).
British	2	0	3	2	2	0	0	0	Bark Beechdale (3 cases) and ship Regent (several; 9 fatal).
Spanish	7	0	1	0	0	0	2	0	
Italian	1	0	0	0	0	0	0	0	
French	1	0	0	0	0	0	0	0	
German	0	0	1	0	0	0	0	0	
Norwegian	0	0	0	0	0	0	1	0	
Total	17	1	10	2	2	0	25	0	
December.									
American	6	0	5	0	0	0	22	0	
British	2	0	2	0	2	0	3	0	
Spanish	4	0	0	0	0	0	4	0	
Total	12	0	7	0	2	0	29	0	

Inclosure.—Statistical tables—Continued.

1889—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
Total for 1889.									
American	125	2	56	0	0	0	257	0	
British	11	1	8	2	17	0	11	0	
Spanish	73	8	4	0	25	1	25	0	
Norwegian	1	0	0	0	0	0	1	0	
Austrian	0	0	0	0	0	0	1	0	
German	0	0	1	0	0	0	1	0	
Italian	2	0	0	0	0	0	0	0	
1890.									
January.									
American	9	0	6	0	0	0	26	0	
British	2	0	0	0	1	0	3	0	
Spanish	7	0	0	0	0	0	4	0	
Russian	1	0	0	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Total	20	0	6	0	1	0	33	0	
February.									
American	16	0	13	0	0	0	25	0	
British	1	0	2	0	1	0	2	0	
Spanish	4	0	1	0	0	0	2	0	
Norwegian	1	0	0	0	0	0	1	0	
Italian	2	0	0	0	0	0	0	0	
Total	24	0	16	0	1	0	30	0	
March.									
American	21	0	9	0	0	0	33	0	
British	0	0	0	0	1	0	2	0	
Spanish	2	0	0	0	0	0	3	0	
Italian	1	0	0	0	0	0	0	0	
Total	24	0	9	0	1	0	38	0	
April.									
American	15	0	18	0	0	0	27	0	
British	1	0	1	0	3	0	3	0	
Spanish	6	0	0	0	2	0	3	0	
German	0	0	0	0	0	0	1	0	
Total	22	0	19	0	5	0	34	0	
May.									
American	21	0	3	0	0	0	25	0	
British	1	0	0	0	1	0	3	0	
Spanish	0	0	2	0	0	0	1	0	
French	0	0	0	0	0	0	1	0	
Total	22	0	5	0	1	0	30	0	
June.									
American	9	0	1	0	0	0	19	0	
British	3	0	0	0	3	0	1	0	
Spanish	4	0	0	0	1	0	3	0	
French	0	0	0	0	0	0	1	0	
Italian	2	0	0	0	0	0	0	0	
Total	18	0	1	0	4	0	24	0	

Inclosure.—Statistical tables—Continued.

1890—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
July.									
American	3	0	4	0	0	0	21	0	
British	0	0	0	0	1	0	3	0	
Spanish	5	0	0	0	1	0	4	0	
French	0	0	0	0	1	0	0	0	
Total	8	0	4	0	3	0	28	0	
August.									
American	3	1	2	0	3	0	19	0	Bark Francisco Garguilo (4 cases).
British	2	1	0	0	2	0	0	0	Ship Eastern Monarch (6 cases).
Spanish	9	1	0	0	3	1	3	0	Bark Maria de las Nieves (2 cases) and steamer Miguel Pinettos (1 case).
French	0	0	0	0	0	0	1	0	
German	0	0	0	0	0	0	2	0	
Total	14	3	2	0	8	1	25	0	
September.									
American	4	0	1	0	0	0	19	0	
British	1	1	1	0	3	0	4	0	Bark Erycina (10 cases; captain died).
Spanish	5	0	0	0	1	0	5	0	
French	0	0	0	0	0	0	1	0	
Total	10	1	2	0	4	0	29	0	
October.									
American	2	0	2	0	0	0	23	0	
British	2	1	0	0	2	1	2	0	Bark Bellona (2 cases) and steamer Arisaig (2 cases).
Spanish	7	0	0	0	0	0	4	0	
Norwegian	0	0	0	0	0	0	2	0	
French	0	0	0	0	1	0	0	0	
Total	11	1	2	0	3	1	31	0	
November.									
American	3	0	4	0	0	0	21	0	
British	3	0	1	0	0	0	2	0	
Spanish	2	0	0	0	0	0	4	0	
French	0	0	0	0	1	0	0	0	
Norwegian	0	0	0	0	0	0	1	0	
Total	8	0	5	0	1	0	28	0	
December.									
American	6	0	5	0	0	0	31	0	
British	4	0	0	0	1	0	1	0	
Spanish	4	0	0	0	0	0	4	0	
French	0	0	0	0	3	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Norwegian	0	0	0	0	0	0	1	0	
Total	15	0	5	0	4	0	37	0	
Total for 1890.									
American	112	1	68	0	3	0	289	0	
British	24	3	5	0	19	1	26	0	
Spanish	55	1	3	0	8	1	100	0	
Russian	1	0	0	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Norwegian	1	0	0	0	0	0	5	0	
Italian	5	0	0	0	0	0	0	0	
German	0	0	0	0	0	0	3	0	
French	0	0	0	0	6	0	4	0	

Inclosure.—Statistical tables—Continued.

1891.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
January.									
American	8	0	2	0	0	0	26	0	
British	1	0	1	0	0	0	0	0	
Spanish	5	0	0	0	0	0	4	0	
Russian	1	0	0	0	0	0	0	0	
French	0	0	0	0	1	0	0	0	
Norwegian	1	0	0	0	0	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Total	17	0	3	0	1	0	30	0	
February.									
American	7	0	4	0	0	0	25	0	
British	2	0	0	0	0	0	0	0	
Spanish	3	0	0	0	2	0	0	0	
Total	12	0	4	0	2	0	25	0	
March.									
American	16	0	5	0	0	0	26	0	
British	0	0	0	0	2	0	3	0	
Spanish	5	0	0	0	1	0	4	0	
German	0	0	0	0	1	0	0	0	
French	0	0	0	0	1	0	0	0	
Total	21	0	5	0	5	0	33	0	
April.									
American	17	0	5	0	0	0	30	0	
British	2	0	0	0	2	0	4	0	
Spanish	6	0	0	0	0	0	9	0	
Norwegian	1	0	0	0	0	0	0	0	
Finnish	1	0	0	0	0	0	0	0	
French	0	0	0	0	1	0	0	0	
Total	27	0	5	0	3	0	43	0	
May.									
American	15	0	6	0	3	0	22	0	
British	2	0	0	0	0	0	3	0	
Spanish	4	0	0	0	0	0	5	0	
German	0	0	0	0	0	0	1	0	
French	0	0	0	0	1	0	0	0	
Total	21	0	6	0	4	0	31	0	
June.									
American	10	0	11	0	0	0	22	0	
British	0	0	2	0	1	0	1	0	
Spanish	4	0	0	0	2	0	5	0	
French	0	0	0	0	1	0	0	0	
Total	14	0	13	0	4	0	27	0	
July.									
American	3	0	1	0	0	0	21	0	
British	1	0	1	0	0	0	4	0	
Spanish	3	0	0	0	0	0	0	0	
French	0	0	0	0	1	0	0	0	
Total	7	0	2	0	1	0	25	0	

Inclosure.—Statistical tables—Continued.

1891—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
August.									
American	3	0	4	0	0	0	21	0	
British	1	0	0	0	0	0	4	0	
Spanish	1	0	0	0	0	0	5	0	
French	0	0	0	0	1	0	0	0	
Total	5	0	4	0	1	0	30	0	
September.									
American	0	0	4	0	0	0	20	0	
British	0	0	1	0	1	0	2	0	
Spanish	4	0	0	0	0	0	3	0	
Norwegian	0	0	0	0	0	0	1	0	
Total	4	0	5	0	1	0	26	0	
October.									
American	3	0	4	0	0	0	21	0	
British	0	0	0	0	3	0	1	0	
Spanish	2	0	0	0	0	0	7	0	
Norwegian	0	0	0	0	0	0	2	0	
Total	5	0	4	0	3	0	32	0	
November.									
American	12	0	4	0	1	0	22	0	
British	2	0	1	0	3	0	3	0	
Spanish	9	0	0	0	1	0	3	0	
French	0	0	0	0	1	0	0	0	
Norwegian	0	0	0	0	0	0	3	0	
Total	23	0	5	0	6	0	31	0	
December.									
American	12	0	4	0	0	0	24	0	
British	4	0	0	0	0	0	3	0	
Spanish	3	0	0	0	0	0	4	0	
French	0	0	0	0	2	0	0	0	
Norwegian	0	0	0	0	0	0	2	0	
Italian	1	0	0	0	0	0	0	0	
Total	20	0	4	0	2	0	33	0	
Total for 1891.									
American	106	0	54	0	4	0	280	0	
British	15	0	6	0	12	0	28	0	
Spanish	38	0	0	0	5	0	49	0	
Russian	1	0	0	0	0	0	0	0	
French	0	0	0	0	10	0	0	0	
Norwegian	1	0	0	0	0	0	8	0	
Italian	2	0	0	0	0	0	0	0	
German	0	0	0	0	1	0	1	0	
Finnish	1	0	0	0	0	0	0	0	

1892.

January.								
American	11	0	8	0	0	0	25	0
British	3	0	1	0	1	0	2	0
Spanish	4	0	1	0	2	0	3	0
Italian	2	0	0	0	0	0	0	0
French	0	0	0	0	1	0	0	0
Total	20	0	10	0	4	0	30	0

Inclosure.—Statistical tables—Continued.

1892—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
February.									
American	16	0	7	0	1	0	24	0	
British	3	0	3	0	3	0	4	0	
Spanish	2	0	0	0	2	0	3	0	
Italian	4	0	0	0	0	0	0	0	
Total	25	0	10	0	6	0	31	0	
March.									
American	21	0	6	0	2	0	31	0	
British	1	0	0	0	3	0	4	0	
Spanish	4	0	0	0	1	0	5	0	
French	0	0	0	0	1	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Total	27	0	6	0	7	0	40	0	
April.									
American	15	0	5	0	2	0	27	0	
British	0	0	0	0	5	0	3	0	
Spanish	3	0	0	0	1	0	3	0	
German	0	0	0	0	0	0	4	0	
French	0	0	0	0	1	0	0	0	
Norwegian	1	0	0	0	0	0	3	0	
Swedish	1	0	0	0	0	0	0	0	
Total	20	0	5	0	9	0	40	0	
May.									
American	12	0	3	0	4	0	19	0	
British	1	0	0	0	2	0	0	0	
Spanish	2	0	0	0	1	0	2	0	
Austrian	1	0	0	0	0	0	0	0	
Norwegian	0	0	0	0	0	0	1	0	
French	0	0	0	0	0	0	1	0	
Total	16	0	3	0	7	0	23	0	
June.									
American	4	0	3	0	0	0	21	0	
British	1	0	0	0	4	0	2	0	
Spanish	7	0	0	0	2	0	3	0	
Norwegian	0	0	0	0	0	0	1	0	
German	0	0	0	0	0	0	1	0	
Italian	1	0	0	0	0	0	0	0	
Total	13	0	3	0	6	0	28	0	
July.									
American	7	0	3	0	0	0	23	0	
British	2	0	0	0	1	0	1	0	
Spanish	1	0	0	0	4	0	1	0	
French	0	0	0	0	2	0	0	0	
Total	10	0	3	0	7	0	23	0	
August.									
American	7	0	2	0	0	0	22	0	
British	0	0	1	1	0	0	7	0	Brig Rozella Smith (3 cases; men ashore).
Spanish	4	1	0	0	4	0	5	0	Bark Maria Bilbao (5 cases).
German	0	0	0	0	0	0	1	0	
French	0	0	0	0	1	0	0	0	
Total	11	1	3	1	5	0	35	0	

Inclosure.—Statistical tables—Continued.

1892—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
September.									
American	2	0	2	0	1	0	19	0	
British	1	1	0	0	1	0	12	0	Brig Estella (1 case).
Spanish	3	0	0	0	0	0	8	0	
German	0	0	0	0	0	0	1	0	
Total	6	1	2	0	2	0	40	0	
October.									
American	1	0	3	0	1	0	21	0	
British	0	0	0	0	5	0	3	0	
Spanish	2	0	0	0	0	0	4	0	
German	0	0	0	0	0	0	1	0	
Norwegian	0	0	0	0	0	0	3	0	
French	0	0	0	0	1	0	0	0	
Total	3	0	3	0	7	0	32	0	
November.									
American	5	0	3	0	2	0	21	0	
British	1	0	0	0	2	0	2	0	
Spanish	2	0	0	0	0	0	3	0	
French	0	0	0	0	1	0	0	0	
Norwegian	0	0	0	0	0	0	4	0	
Total	8	0	3	0	5	0	30	0	
December.									
American	8	0	4	0	0	0	27	0	
British	3	0	0	0	2	0	1	0	
Spanish	3	0	0	0	1	0	3	0	
German	0	0	0	0	0	0	2	0	
French	0	0	0	0	1	0	0	0	
Norwegian	0	0	0	0	0	0	3	0	
Total	14	0	4	0	4	0	36	0	
Total for 1892.									
American	109	0	36	0	11	0	174	0	
British	16	1	5	1	29	0	41	0	
Spanish	37	1	1	0	18	0	43	0	
Italian	4	0	0	0	0	0	0	0	
French	0	0	0	0	9	0	0	0	
German	0	0	0	0	0	0	10	0	
Norwegian	1	0	0	0	0	0	0	0	
Swedish	1	0	0	0	0	0	0	0	
Austrian	1	0	0	0	0	0	0	0	

1893.

January.								
American	8	0	2	0	1	0	26	0
British	7	0	1	0	3	0	1	0
Spanish	5	0	0	0	2	0	3	0
French	0	0	0	0	2	0	0	0
Norwegian	1	0	0	0	0	0	6	0
German	0	0	0	0	0	0	1	0
Total	21	0	3	0	8	0	37	0

Inclosure.—Statistical tables—Continued.

1893—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
February.									
American	9	0	1	0	0	0	26	0	
British	4	0	1	0	4	0	2	0	
Spanish	4	0	0	0	0	0	3	0	
Norwegian	0	0	0	0	0	0	5	0	
German	0	0	0	0	0	0	1	0	
Italian	2	0	0	0	0	0	0	0	
Total	19	0	2	0	4	0	37	0	
March.									
American	18	0	6	0	0	0	30	0	
British	7	0	0	0	3	0	1	0	
Spanish	1	0	1	0	0	0	6	0	
Norwegian	0	0	0	0	0	0	2	0	
French	0	0	0	0	2	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Total	27	0	7	0	5	0	39	0	
April.									
American	19	0	7	0	2	0	27	0	
British	1	0	0	0	4	0	3	0	
Spanish	6	0	3	0	0	0	6	0	
Total	26	0	10	0	6	0	36	0	
May.									
American	9	0	8	0	1	0	23	0	
British	2	0	4	0	5	0	5	0	
Spanish	2	0	1	0	0	0	5	0	
German	0	0	0	0	0	0	2	0	
French	1	0	0	0	0	0	0	0	
Italian	1	0	0	0	0	0	0	0	
Norwegian	0	0	1	0	0	0	0	0	
Total	15	0	14	0	6	0	35	0	
June.									
American	11	2	3	0	1	0	22	0	Schooners Richard S. Spofford (1 case) and John C. Smith (4 cases).
British	1	1	0	0	4	0	4	0	Barkentine Jeanne (3 cases).
Spanish	4	0	0	0	0	0	7	0	
Norwegian	0	0	0	0	0	0	2	0	
French	0	0	0	0	1	0	0	0	
Total	16	3	3	0	6	0	35	0	
July.									
American	7	1	1	0	0	0	24	0	Barkentine Henry Norvell (2 cases).
British	1	1	1	0	3	1	5	0	Brig Nelson Rice (2 cases) and barkentine Glenora (2 cases).
Spanish	2	0	0	0	1	0	5	0	
Norwegian	0	0	0	0	0	0	1	0	
French	0	0	0	0	1	0	0	0	
Total	10	2	2	0	5	1	35	0	
August.									
American	2	1	1	0	2	0	22	0	Ship Fawn (2 cases).
British	2	2	0	0	10	2	4	0	Bark Antilla (2 cases), brig Rozella Smith (several cases), steamers Monmouth (1 case) and Maple Branch (3 cases).
Spanish	5	0	1	0	0	0	1	0	
Norwegian	2	0	0	0	0	0	0	0	
French	0	0	0	0	1	0	0	0	
Total	11	3	2	0	13	2	27	0	

Inclosure.—Statistical tables—Continued.

1893—Continued.

Nationality.	Sailing vessels.				Steamers.				Name of vessel infected.
	At wharves		In open bay.		At wharves		In open bay.		
	Number.	Infected.	Number.	Infected.	Number.	Infected.	Number.	Infected.	
September.									
American	4	0	2	0	1	0	23	0	
British	3	0	0	0	2	0	3	0	
Spanish	2	0	0	0	0	0	5	0	
Norwegian	0	0	1	0	0	0	0	0	
French	0	0	0	0	1	0	0	0	
Total	9	0	3	0	4	0	31	0	
October.									
American	5	0	3	0	0	0	20	0	
British	1	1	1	0	1	0	7	0	Schooner Gazelle (1 case, captain).
Spanish	5	0	0	0	5	0	1	0	
Total	11	1	4	0	6	0	28	0	
November.									
American	8	1	4	0	0	0	26	0	Brig Ernestine (3 cases).
British	2	0	1	0	1	0	2	0	
Spanish	6	0	0	0	5	0	3	0	
Norwegian	1	0	0	0	0	0	0	0	
Russian	1	1	1	0	0	0	0	0	Schooner Zeriba (several cases).
Total	18	2	6	0	6	0	31	0	
December.									
American	5	0	1	0	1	0	26	0	
British	5	0	0	0	5	0	2	0	
Spanish	3	0	0	0	0	0	3	0	
Norwegian	0	0	0	0	0	0	2	0	
Italian	3	0	0	0	0	0	0	0	
Total	16	0	1	0	6	0	33	0	
Total for 1893.									
American	105	5	39	0	9	0	295	0	
British	36	5	9	0	45	3	39	0	
Spanish	45	0	6	0	13	0	48	0	
French	1	0	0	0	8	0	0	0	
Norwegian	4	0	1	0	0	0	18	0	
German	0	0	0	0	0	0	4	0	
Italian	7	0	0	0	0	0	0	0	
Russian	1	1	0	0	0	0	0	0	

1894.

Nationality.	Sailing vessels.				Steamers.				Remarks.
	At wharves.		In open bay.		At wharves.		In open bay.		
	Havana side.	Opposite.	Number.	Infected.	Havana side.	Opposite.	Number.	Infected.	
January.									
American	6	8	5	0	0	0	26	0	
Spanish	6	0	0	0	1	0	3	0	
British	7	0	0	0	0	3	1	0	
Norwegian	0	0	0	0	0	0	3	0	
Italian	2	0	0	0	0	0	0	0	
Total	21	8	5	0	1	3	33	0	

Inclosure.—Statistical tables—Continued

1894—Continued.

Nationality.	Sailing vessels.				Steamers.				Remarks.
	At wharves		In open bay.		At wharves		In open bay.		
	Havana side.	Opposite.	Number.	Infected.	Havana side.	Opposite	Number.	Infected.	
February.									
American	9	7	6	0	0	1	26	0	
Spanish	4	0	0	0	0	0	4	0	
British	7	0	0	0	0	6	4	0	
Norwegian	1	0	0	0	0	0	1	0	
Italian	1	0	0	0	0	0	2	0	
Total	22	7	6	0	0	7	33	0	
March.									
American	13	5	9	0	0	0	34	0	
Spanish	1	0	0	0	0	0	8	0	
British	3	0	1	0	0	6	3	0	
Norwegian	0	0	0	0	0	0	3	0	
Italian	1	0	0	0	0	0	0	0	
Total	18	5	10	0	0	6	48	0	
April.									
American	10	10	9	0	0	0	26	0	
Spanish	8	0	0	0	1	0	3	0	
British	1	1	2	0	0	4	4	0	
Total	19	11	11	0	1	4	33	0	
May.									
American	12	5	10	0	0	0	24	0	
Spanish	2	0	0	0	0	0	3	0	
British	1	0	1	0	1	3	4	0	
Total	15	5	11	0	1	3	31	0	
June.									
American	3	5	3	0	0	0	25	0	
Spanish	2	0	0	0	1	0	4	0	
Norwegian	0	0	1	0	0	0	0	0	
British	1	0	1	1	1	5	4	0	June 11, 1 vessel at Tallapiedra wharf had 1 case of yellow fever.
Italian	1	0	0	0	0	0	0	0	
Total	7	5	5	1	2	5	33	0	
July.									
American	6	2	0	1	0	0	27	0	1 American vessel at Tallapiedra wharf had 2 cases of yellow fever.
Spanish	4	0	0	0	0	0	9	0	
British	0	0	1	0	3	4	12	0	
German	0	0	0	0	0	0	1	0	
Total	10	2	1	1	3	4	49	0	
August.									
American	5	0	1	4	1	0	22	0	4 vessels with yellow fever—3 at Tallapiedra, 1 at Quinto; 16 cases in all.
Spanish	4	0	0	0	2	0	3	0	
British	1	0	0	1	0	10	4	2	1 vessel at Tallapiedra had 6 cases of yellow fever. British steamship Samuel Tysack, discharged at and sailed from West Regla (Quinto). British steamship County Down in open bay. Yellow fever was carried aboard by engineer, who was coming ashore to my office (3 cases.)
Norwegian	0	0	0	0	1	0	0	0	
Total	10	0	1	5	4	10	29	2	

Inclosure.—Statistical tables—Continued.

1894—Continued.

Nationality.	Sailing vessels.				Steamers.				Remarks.
	At wharves		In open bay.		At wharves		In open bay.		
	Havana side.	Opposite.	Number.	Infected.	Havana side.	Opposite.	Number.	Infected.	
September.									
American	2	1	0	1	0	0	20	0	
Spanish	1	0	0	0	1	0	3	0	
British	0	0	0	0	0	6	6	1	British steamship Marstonmoor, Casa Blanca, under the fortification. Captain much ashore; 3 cases yellow fever.
German	0	0	0	0	0	0	1	0	
Total	3	1	0	1	1	6	30	1	
October.									
American	1	0	2	0	0	0	20	0	
Spanish	4	0	0	0	2	0	3	0	
British	2	0	0	1	0	7	1	0	1 vessel at Tallapiedra wharf with yellow fever; 1 case or more.
Norwegian	0	0	0	0	0	0	4	0	
Total	5	0	2	1	2	7	28	0	
November.									
American	7	4	2	0	0	0	18	0	
Spanish	8	0	0	0	2	0	3	0	
British	4	0	1	2	1	4	5	0	1 vessel at Tallapiedra wharf had 3 cases of yellow fever; another vessel had 3 cases also.
Norwegian	0	0	0	0	0	0	3	0	
Total	19	4	3	2	3	4	29	0	
December.									
American	6	3	5	0	0	0	25	0	
Spanish	7	0	1	0	2	0	3	0	
British	7	1	0	0	1	2	4	0	
Norwegian	0	1	0	0	0	0	1	0	
Italian	1	0	0	1	0	0	0	0	1 Italian vessel had 8 cases of yellow fever at Caballeria wharf.
Total	21	5	6	1	3	2	33	0	
Total for 1894.									
American	80	50	52	6	1	1	293	0	
Spanish	51	0	1	0	12	0	49	0	
British	34	2	7	5	7	60	49	3	
Norwegian	1	1	1	0	1	0	16	0	
Italian	6	0	0	1	0	0	0	0	
German	0	0	0	0	0	0	2	0	

Quarantine regulations an exponent of the danger from Havana.

The gravity of the danger to the United States of the introduction of yellow fever from Cuba and Havana is illustrated by a cursory review of the quarantine regulations which have been adopted by local and State authorities, as well as by the National Government. Between May and November every vessel from Havana and most other Cuban ports arriving at any port in the United States between Norfolk, Va., and Brownsville, Tex., whether the yellow fever has been aboard the vessel or not, is required to discharge ballast at quarantine, to have its hold washed and filled with fumes of sulphur, all the dunnage of the crew and baggage of passengers placed in steam disinfecting chambers, and after completion of disinfection the vessel is held from three to five days before being allowed to enter port. Some exception is made to the above with regard to iron steam vessels bringing passengers, but specific and stringent requirements are made of these. Moreover, the regulations forbid absolutely persons not immune to yellow fever to come to Florida from Cuba during this period. To carry out these regulations the United States is obliged to maintain two inspectors in Havana, in order to give the proper certificates to passengers leaving that port for the United States, and to provide and maintain expensive quarantine establishments.

In spite of all these regulations it has been vigorously asserted that the only positive safety lies in absolute nonintercourse.

Congressional testimony to the danger from Havana.

The following is an extract from the report of a special subcommittee of members of the Senate and House of Representatives which visited Cuba to examine into the danger of the importation of epidemic and contagious diseases into the United States, particularly through immigrants from Cuba and from the West India Islands:

[Extract from Senate Report No. 1263, Fifty-second Congress, second session.]

The committee found it necessary to make their inquiry by visiting Florida and Cuba, where they took the testimony herewith reported. They discovered, as will appear from the evidence, facts which had not before been brought prominently to the notice of the country.

There is daily intercourse between the people of Havana and Key West and Tampa, Fla. The number of persons estimated to pass annually from Cuba to the United States and back is between 50,000 and 100,000. Havana is within six or seven hours, by steam, of Key West, and is connected with Europe by several lines of steamers running fifty ships, more or less, each month between the island and European ports, furnishing an easy, convenient, and cheap passage to immigrants from all parts of Europe to Cuba and Mexico and the United States.

The evidence shows that the most fatal form of yellow fever is always present in Havana, and in the summer and autumn it is liable to be imported into the United States, by both immigrants and merchandise passing through the State of Florida, unless the most careful and thorough preventive measures shall be constantly used.

The sanitary condition of Havana is a perpetual menace to the health of the people of the United States and invites the entry into the island of contagious and infectious diseases of the most virulent and fatal character. The danger from immigration and the constant passage backward and forward of persons on business who are temporary residents, and the increased commerce between the island of Cuba and the United States, requires the most unremitting care and vigilance.

The island of Cuba, lying in the Gulf of Mexico and almost touching the shores of the United States, was regarded by all the great statesmen of our earlier history as an outpost of the United States, the key of the Gulf, and the necessary place of guard and protection for its commerce. It is one of the most fertile regions in the world, and has a future before it of great development. Its commerce with the United States must continually increase, and the interests of the American people will become more closely connected with the health and prosperity of the people of the island.

In this view, the conditions of intercourse with Cuba and the other West India islands, whether by immigration or other relations of business, are of the greatest concern to the people of the United States.

The question is growing more and more in importance because of the certainty of the opening of one or more transits by waterways across the States of Central America from the Pacific Ocean to the waters of the Gulf of Mexico and the Atlantic Ocean, which will provide convenient and cheap transit for the commerce of the peoples of the Eastern Hemisphere with those of the West. Cuba and the State of Florida lying across the necessary pathway of this commerce will offer the convenient places for the landing of the ships which shall carry its immigrants, visitors, and products.

Whatever restrictions or conditions it may be determined by Congress to impose upon immigration or commerce, either from Europe or oriental nations, for the exclusion of contagious and infectious disease and the promotion of maritime sanitation, must be applied strictly and enforced vigorously as between Cuba, the West India islands, and the United States.

* * * * * * *

The day is near at hand when 100,000,000 people will inhabit the United States, the most prosperous, free, and intelligent people of the world, cultivating peaceful relations with all nations, but powerful enough to demand justice, right, and protection for all the people of the Americas and the adjacent islands, and with the duty incumbent on them to initiate the policies which will best conduce to their just and fair commercial intercourse, to their mutual protection, and their progress in all the arts and sciences which promote the well-being of the great body of their people.

No improvement in sanitary conditions.

In view of the foregoing statements the question naturally arises whether there has been any recent improvement of the sanitary condition of Havana, and whether there is any evidence of a diminution of the danger to the United States. The answer to this inquiry must be in the negative, as is shown yearly by the large number of infected vessels from this port arriving at our Southern quarantines. No report has been received showing any exertion, or any disposition to any exertion, on the part of the proper authorities towards remedying the evil. Yellow fever is more prevalent, as is shown in the foregoing pages, in Havana than in previous times if we except the periods of great epidemics. A special inquiry was made by the Bureau of the sanitary inspector of the Marine-Hospital Service stationed at Havana as to drainage and water supply, and the following is his report:

Report on water supply and drainage of Havana.

HAVANA, ISLAND OF CUBA, *November 4, 1894.*

SIR: The present or new water supply of Havana has as its source several large springs found among the hills 18 kilometers from the city in a southwesterly direction, in the valley of a small river called Almendares at a point called Vento. The water issues from the springs in great abundance at about 2 meters above the level of the river and is collected in an artificial basin of masonry, semicircular in form and 30 meters in diameter.

The wall separating it from the river is 12 meters high and 2 meters thick at the top, and through this dike the overflow from the springs is allowed to run into the river below. As the springs are on the opposite side of the river from Havana the water is carried from the basin immediately through a tunnel under the Almendares by two iron siphonic conductors, or pipes, 1 meter in diameter, which discharge on the city side of the river directly into the canal, or aqueduct proper, which aqueduct runs 14 kilometers across the country to the lately constructed reservoir at Palatino, a place sufficiently elevated to command the city.

The aqueduct, which is mined or sunk more or less in the earth a greater part of the way, is ovid in shape, with a vertical diameter of 2½ meters and a horizontal one of 2 meters. The walls of it are of stone masonry and hydraulic cement up to where it begins to arch over, when it is constructed of brick. It is aerated or ventilated by means of towers 500 meters apart throughout its course.

As this aqueduct was begun in 1854, forty years ago, it is said that the roof is imperfect in places, being disturbed by the roots of an occasional small tree which has grown on its top.

After years of vexatious delay financial arrangements were consummated, so that in January, 1889, the present distributing reservoir at Palatino was commenced, and in January, 1892, it and its auxiliaries were completed, and since that time Havana and its suburbs have been supplied with water directly from the springs at Vento, it is believed without any admixture or contamination.

This reservoir, which is of stone masonry, is divided by a very thick wall into two equal compartments 72 meters square, which will hold 80,000 cubic meters. Across this thick division wall is continued the original aqueduct to the front of the reservoir, where its waters are finally deposited in one or both compartments as may be desired. By an appropriate construction the surplus of water is conveyed into a small stream that empties into the harbor. The apparatus for the distribution of the water to Havana and its different suburbs is in a kind of well at the front end of the division wall, which will receive water from one or both compartments or directly from the aqueduct. Over this is a kind of monumental structure.

From this well radiate four iron pipes, or conductors; one, 0.50 meter in interior diameter, supplies the suburb called Jesus del Monte with water; another of equal caliber joins the aqueduct Ferdinand Seventh; another, 0.30 meter in diameter, furnishes the suburb called the Cerro, while the fourth or principal one, 1.10 meters in interior diameter, supplies the city proper. The latter, after being conveyed 4 kilometers in and on the ground and over 22 arches across a swampy place near the city slaughterhouses, finally reaches the highest point in the city, at the junction of the Calzadas de la Reina, Belas coain, and Carlos Tercero, where the distribution to the different parts of the city begins. Beside such of the old pipes as have been utilized, there have been laid 150 kilometers of new ones, varying in caliber from 0.60 meter to 0.10 meter, which are the smallest.

In respect to valves, etc., modern methods have been substituted for the old ones, and the apparatus for fires, which formerly were only 60, have been increased to 400 in number.

From 1878 to 1892 the city and suburbs were imperfectly and insufficiently supplied with water coming in part from Vento in a roundabout way through a canal and the aqueduct of Ferdinand Seventh, and in part by an open aqueduct from the Almendares River, which ran unprotected and uncovered through the thickly populated Cerro and the outside of the city, receiving in its course filth from bath houses, kitchens, water closets, and stables, dead animals from its banks, with occasionally a dead human body.

It was calculated that only about 18,000 cubic meters of this adulterated water was supplied to the city and suburbs for a population of over 300,000, and the complaints were frequent and loud, particularly during dry and hot weather.

To-day the consumption of the spring water is twice as much and can be increased very much more, for the springs in Vento furnish 120,000 cubic meters of water daily, and the conducting pipes from the reservoir at Palatino to Carlos Tercero can bring 80,000 cubic meters per day.

The cost of the works from the receptacle at the springs in Vento (begun in 1854 and often interrupted for want of funds), including the canal, or aqueduct, to the reservoir at Palatino, was nearly $5,000,000, and the reservoir with the distribution service, begun in January, 1889, and finished in January, 1892, cost nearly $2,000,000.

For all this supply of water and outlay there is no sewerage to correspond.

The few sewers there are are badly made of pervious material, so uneven in their course and so leaky that the city would be better off without them.

It is already being reported that many houses, as also the city generally, are damper than before the new supply of water, and naturally this must obtain and increase until some appropriate drainage system is constructed.

Occasionally one hears of some method of sewering the city being contemplated, and quite recently the ayuntamiento, with the cooperation of the captain-general, tried to effect a loan of $15,000,000, some of which was to be used for that purpose, but for some reason it failed. It is possible, and I would not say improbable, that something in the way of draining this place will be done before long, but I fear it will be like the water supply, slow in coming, and in the meantime such diseases as thrive in heat, moisture, and filth will continue, perhaps increase.

In November, 1889, Dr. J. L. Zamora, the distinguished professor of chemistry in the university here, was requested by the governor and ayuntamiento to make a chemical analysis of the waters in the receptacle at the Vento springs, and the following is the result:

In one liter:

	Grams.
Chloride of sodium	0.01275
Chloride of calcium	.01888
Sulphate of magnesia	.01776
Carbonate of calcium	.22530
Carbonate of magnesia	.00665
Alumina	.00125
Silica	.00572
Carbonic acid	.08355
Oxygen lost in chloride of calcium	.00272
Total	.37458

It will be seen that the predominating element is lime, making it emphatically a hard water, potable, as the maxim amount of lime allowed in water is more than double, or 5 decigrams. I am not aware that any bacteriological or microscopical examination of the water has ever been made.

It is diaphonous, colorless, pleasant to the palate, with no saltish, alkaline, or sweetish taste.

I wish to say that I am indebted to the superintending engineer of the waterworks, Dr. Joaquin Ruiz, for data in respect to them, viz, the waterworks.

Most respectfully, yours,

D. M. Burgess, M. D.,
Sanitary Inspector, Marine-Hospital Service.

Surgeon-General Marine-Hospital Service,
Washington, D. C.

Abattoirs of Havana.

Havana, Island of Cuba, *August 3, 1895.*

Sir: The two abattoirs which supply this city are situated to the southwest of the denser portion of the population, on branches of a small fresh-water stream which empties on the city side into one horn of the head of the harbor, quite near to the military hospital and Tallapiedra wharf and not far from the arsenal (the little navy-yard) and San José wharves.

The larger abattoir (or "Matadero" on your map) is the slaughter house for cattle, and the smaller one (marked on your map "Rastro de Ganado Menor") is for smaller animals, as hogs, sheep, etc.

In these abattoirs from 200 to 300 head of cattle are daily killed and dressed, and as many or more sheep, hogs, etc., and all the blood, washings, liquid filth, the refuse from the rendering of tallow, grease, etc., which this gives rise to, runs down the fresh-water stream to pollute the water of the harbor and to be entrapped by the wooden structure of the wharves and become deposited under and around them. That this pollution affects prejudicially the health is a matter of general observation, for it is seen that vessels in the part of the harbor which receives the abattoir filth have more sickness aboard than those in other parts of the bay, and that the people living in the district influenced by such conditions have more sickness.

Very respectfully,

D. M. BURGESS,
Sanitary Inspector, Marine-Hospital Service.

DR. WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Special attention is called to the italicized portion of the foregoing report, which states that while a new system of waterworks has been introduced, no corresponding drainage or sewerage has been provided. This renders the conditions in Havana still more dangerous, for it may be accepted as a sanitary axiom that proper drainage should be provided before an increased supply of water, as the latter without the former increases the moisture of the soil and its liability to sewage contamination. This fact has been well illustrated in the history of Brunswick, Ga., recently (1893) afflicted with an epidemic of yellow fever. The following letter is here inserted, incidentally, to illustrate the good effects of proper drainage, but more particularly to show the danger arising from an increased supply of water to a community without corresponding additional drainage, which conditions prevail now at Havana:

The necessity of ample drainage in connection with unlimited water supply, as illustrated by the city of Brunswick.

WASHINGTON, D. C., *May 22, 1894.*

DEAR SIR: In compliance with your request that I give you in condensed form the substance of statements in an interview with you to-day in relation to Brunswick, Ga., I have to say that I have resided in Brunswick for twenty-four years, and watched its growth from a village to its present population of over 10,000 people.

Its growth from 1880 to 1890 in population was phenomenal, the population of 1880 being 2,900, and for 1890 over 10,000. The health conditions at Brunswick when its population was small and scattered over a wide area of territory were remarkable, the death rate being as low in 1882 as 8 per 1,000 per year. With the increase in population this death rate had risen in 1886 to 12 per year. In 1884, artesian wells were bored, and it was discovered that an unlimited supply of pure drinking water could be procured by this method. A water company was at once organized with ample capital, and the water supply was distributed over the entire built-up portion of the city, covering some 24 miles of streets. The result, as has happened in every instance where an unlimited water supply has been distributed, was that the population used and poisoned from 10 to 20 times more water than they did when compelled to procure their supply from wells and pumps. Those who had studied sanitary matters realized that there was great danger in such a distribution and use of water without concurrently providing for a system of sewerage to remove the waste water and prevent its absorption by the soil, and an effort was made to procure a system of sewerage covering an equal area of territory with the water distribution. It was also observed that the level of water in the soil was steadily rising and that the death rate per 1,000 per year was steadily rising, and this was attributed mainly to this water distribution without concurrent methods of removal.

This agitation met with the usual indifference to sanitation and its necessities. Later, in 1889, a thorough education of the public upon the subject having aroused the people to the necessity, a vote upon sewerage, authorizing the issue of bonds required by the constitution of the State, resulted in favor of sewerage by an overwhelming majority. Thus armed with the power and the funds, the mayor and council called in the aid of sewerage experts, and, as has been the case elsewhere, the experts, as well as the people, differed in relation to the wisest plan. Thus matters continued until the outbreak of the epidemic of yellow fever in August, 1893. The soil in the thickly inhabited portion of the town had become literally saturated with poisoned water.

The level of water in the soil having been raised very considerably, precautions had been taken to get rid of the other wastes from the premises of the people and destroy them in a crematory, but without sewerage it was utterly impossible to get rid of the poisoned waters from sinks, bath tubs, and wash rooms.

During the epidemic our relief association, of which I was vice-president, deemed it best to employ as large a number of the people we were compelled to feed as possible, and thus keep them out of mischief. The area of territory north of the city limits had always been covered in rainy weather with a great deal of surface water, which caused malarial fevers in the fall, and sometimes in the spring. We thoroughly ditched this territory for 6 miles from the city, and have continued this system of surface drainage throughout the entire corporate limits. At last, taught the lesson that delay in procuring the best methods of sanitation is dangerous by the supreme argument of a yellow fever epidemic, our mayor and council invited George E. Waring, jr., of international reputation as a sanitarian, to visit our city and suggest the best possible system of sewerage and sanitation. He came, and proposed a system of sewerage pipes, with agricultural tile drains in the same ditches with the sewerage pipes, a well, to be constructed 20 feet deep, into which all the sewerage of the town would flow, thence to be pumped to a point at the bottom of the river.

A contract was at once entered into with contractors to put in 21½ miles of this sewerage, at a cost of $160,000, under the supervising of Mr. Waring as engineer. Eight miles of this system has been put in, covering the most thickly inhabited and business portions of the town. The other 13 miles will be put in as soon as it is safe to disturb the earth in November, and the system will then gradually be extended with the growth of the city.

Already the beneficial result of the agricultural drain tile branch of the sewerage system has become a matter of universal and favorable comment. The level of water in the soil, over the area covered by the 8 miles of the system put in, having been reduced as much as 3 feet. It is claimed for this feature of the system that, for the area covered by it, the problem of surface drainage will also be in great degree solved; indeed, entirely solved, except in cases of very heavy rainfall.

Our board of health have adopted far more stringent regulations for the inspection and thorough sanitation of premises, both inside and out, and I think we may safely point to Brunswick as an example of thorough and complete sanitary work.

I do not hesitate to express my belief that Brunswick has suffered from the last epidemic of preventable disease.

Very truly, yours,
C. P. GOODYEAR.

Hon. WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service, Washington, D. C.

In closing this portion of my report relating to yellow fever it remains to be said that immunity from this dread pestilence will only be secured by intelligent sanitary work in our Southern seaports, namely, the providing of a thorough system of drainage and sewerage, good water supply, and municipal cleanliness; and also by demanding of our neighbors that their ports shall be made to be of as little danger to the people of the United States as the ports of this nation are to them.

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, CITIES VISITED, AND SOURCE OF INFECTION (1668–1893), CHRONOLOGICALLY ARRANGED.

[In this table cases of yellow fever which have been detected and detained at quarantine stations are not considered. Epidemic years are marked with an E.]

Year.	Locality.	Origin.	Remarks.
1668	New York	West Indies	According to Toner the first appearance of yellow fever in the United States. (Report U. S. Marine-Hospital Service, 1873; J. H. Griscom, M. Rep., 1856, p. 561.)
1691	Boston	do	Infected for the first time by a vessel from the West Indies. (B. Dowler, Tableau of Yellow Fever, 1853, p. 7.)
1693	do	do	Wheeler's fleet brought the disease from Barbados and Martinique. (Hutchinson, History of New England, Vol. II, p. 72; and Ledird, New History of England, III, p. 110; also Ed. N. Y. J. M., 1856, p. 278, Toner.)
1693	Philadelphia	do	La Roche (Vol. I, p. 48); according to Toner the disease first visited Philadelphia in 1695 and Charleston in 1699. Both authors attribute the origin of the epidemic to boats coming from the Antilles.
1693	Charleston, S. C	do	
1695	Philadelphia	do	According to Toner the first appearance of yellow fever on the Delaware (J. N. Schoolfield, Va. Med. Jour., 1857, p. 358), brought by boat from the West Indies. (Bérenger-Féraud, p. 36.)
1697	Virginia	do	The fleet of Admiral Nevil brought the disease from the West Indies to Virginia. The mortality was considerable. The admiral himself died, and of all the captains only one survived. (Bérenger-Féraud, Traite theoretique et clinique de la fièvre jaune, 1890, p. 37.)
1699 E	Philadelphia	do	220 out of 2,000 or 3,000 inhabitants died of yellow fever, called at the time the Barbados fever. because it was brought by a ship from that island. (Bally, after Lytler, American Registers, Vol. I; R. La Roche, Ch. M. J. and Rev., 1852, p. 58, Toner.)
1699	Charleston, S. C		Simon's Trans. S. C. Med. Assn., 1851, p. 37, Toner.
1702 E	New York	West Indies	A severe epidemic, said to have been brought to the city by a bale of cotton from St. Thomas. The fever this year was carried along the lines of trade as far as Biloxi. (Bérenger-Féraud, loc. cit., p. 39.) 570 deaths. (J. H. Griscom, Visitation of Yellow Fever, p. 2.)
1702	Biloxi, Miss		Drake Dis. Int. Valley of N. A., 191. (Toner.)
1703	Charleston, S. C		According to Kewelt the disease was brought by way of the sea. (Bérenger-Féraud, loc. cit.) Simon's Trans. S. C. Med. Assn., 1851, p. 37. (Toner.)
1705	Mobile		(P. H. Lewis. N. O. Med. Jour., 1845, Vol. I, p. 283.)
1728	Charleston, S. C		(Carpenter, sketches from the history of yellow fever, 1844, p. 11. Simon's Trans. S. C. Med. Assn., 1851, p. 37. Toner.)
1729	Louisiana		Bérenger-Féraud, loc. cit., p. 43.
1732 E	Charleston, S. C	West Indies	Severe epidemic, 8 to 12 deaths daily from May to October. (Toner.) Brought to port by a vessel from the West Indies (Montrie and Linning) and Simon's Trans. S.C. Med. Assn., 1851, p. 37. (Toner.)
1732 E	Philadelphia		Carpenter, loc. cit., p. 11. Daily Shreveport Times, Vol. II, No. 311, 1873. (Toner.) 250 deaths .(Bérenger-Féraud, loc. cit.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1732	New York		J. H. Griscom, Visitation of Yellow Fever, p. 3. (Toner.)
1734	Charleston, S. C		T. Harris. (Philadelphia M. and P. J., No. 5, p. 21.)
1735	New Haven, Conn		Pariset, quoted by Bérenger-Féraud, loc. cit., p. 45.
1737	Norfolk	West Indies	The disease was brought to Virginia from the Antilles, according to Mitchell & Rush. (An account of the Bilious Vomiting Yellow Fever.)
1739	Charleston, S. C	do	According to Linning and Ramsay. (Description of yellow fever, Vol. II, p. 370.) The disease came from the West Indies. H. Hume, Ch. M. J. and Rev. 1854, p. 145. (Toner.) Carpenter, loc. cit., p. 11.
1741 E	Philadelphia	do	Carpenter, loc. cit., p. 12. The disease was brought to the city in June, presumably in a trunk of clothing from the West Indies. (Bérenger-Féraud, loc. cit.) 250 deaths. (J. H. Griscom, Visitation of Yellow Fever, p. 3.)
1741	Norfolk		Bérenger-Féraud. (Med. Repos., Aug. 1810.)
1741	New York		Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1741	Boston		15 deaths. (Bérenger-Féraud, loc. cit., p. 47.)
1742	Norfolk		Bérenger-Féraud, loc. cit., p. 46.
1742	New York		Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1742	Philadelphia		B. Dowler, Tableau of Yellow Fever, p. 3. (Toner.)
1743	do		Do.
1743 E	New York		217 deaths, J. H. Griscom, Visitation of Yellow Fever, p. 3. (Toner.)
1743	New Haven		Bérenger-Féraud, loc. cit., p. 48.
1744	Philadelphia	West Indies	Brought to the city by an infected ship from the West Indies. (Bérenger-Féraud, loc. cit., p. 48.) R. La Roche, Ch. M. J. and Rev., 1852, p. 458. (Toner.)
1745 E	Charleston, S. C	do	According to Linning, brought to port by an infected ship from the West Indies. (Bérenger-Féraud, loc. cit.) W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1745	New York		J. H. Griscom, Visitation of Yellow Fever, p. 3. (Toner.)
1747 E	Philadelphia		Currie, Rush, and Bally. (Bérenger-Féraud, loc. cit.) R. La Roche, Ch. M. J. and Rev., 1852, p. 458. (Toner.)
1747	Norfolk		Bally. (Bérenger-Féraud, loc. cit.) Daily Shreveport Times, Vol. II, No. 311, 1873. (Toner.)
1747	New York		J. H. Griscom, Visitation of Yellow Fever, p. 4. (Toner.)
1748	Charleston, S. C	West Indies	The disease this year was, according to Moultrie and Linning, imported by a contaminated vessel from the West Indies. Bérenger-Féraud, loc. cit.) W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1748	New York		Daily Shreveport Times, Vol. II, No. 811, 1873. (Toner.)
1749	Charleston, S. C		Moreau de Jonnès. (Monographie historique et médicale de la fièvre jaune, Paris, 1820, p. 56.)
1753	do		Sporadic. (Linning and Ramsay.) W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1755	do		Do.
1761	do		Harris. Philadelphia M. and Ph. J., 1805, p. 21. (Toner.)
1762 E	Philadelphia	West Indies	Severe epidemic started by a sailor from Havana, who communicated the disease to his family. (Redman, quoted by Bally.) J. H. Griscom, Visitation of Yellow Fever, p. 5. (Toner.)
1762	Charleston, S. C		Dawson and De Saussure, Census of Charleston. (Toner.)
1762	New York		Daily Shreveport Times, Vol. II, No. 811, 1873. (Toner.)
1763	Philadelphia		Sporadic. (Rush.)
1763 E	Nantucket, Mass		259 deaths (Toner), Med. Rep. 1853, p. 107.
1764	Pensacola		P. S. Townsend, N. Y. M. and Ph. J., 1823, p. 315. (Toner.)
1765	Mobile		Drake, Dis. Int. Valley of N. A., p. 216. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1765 E	Pensacola	West Indies	A British garrison was sent from England to occupy the city, and coming by the way of the West Indies, introduced the disease. (Monette-Williams, Carpenter, loc. cit., p. 12.) 125 deaths. (Lind, Vol. I, p. 45; Bérenger-Féraud, loc. cit., and Drake Dis. Int. Valley of N. A., p. 190.)
1766	Mobile		P. H. Lewis, N. O. M. J., Vol. I, No. 4, 1845, p. 283. (Toner.)
1768	Charleston, S. C		M. M. Dowler, N. O. M. J., 1859, p. 305. (Toner.)
1769	New Orleans		The first appearance of yellow fever in New Orleans. (S. Chaille, Va. M. J., 1858, p. 498. Toner.)
1770	Charleston, S. C		T. Harris, Phila. M. and Ph. J., 1805, p. 21. (Toner.)
1783	Baltimore		Webster, quoted by Bérenger-Féraud, loc. cit., p. 57.
1789	Norfolk		Bérenger–Féraud, loc. cit., p. 58.
1789	Baltimore		Do.
1789	Philadelphia		Do.
1789 E	New York		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1790	do		Sporadic. (Bally.)
1791	New Orleans		S. Chaille, Va. M. J., 1858, p. 498. (Toner.)
1791	Philadelphia		Bérenger-Féraud, loc. cit., p. 58.
1791 E	New York		Ed. N. Y. J. M., 1856, p. 278. Report on Quarantine on the Southern and Gulf Coasts of the U. S. (H. E. Brown, 1873.)
1792	Charleston, S. C		W. Hume, Ch. M. J. and Rev., 1852, p. 145. (Toner.)
1792	New York		Ed. N. Y. J. M., 1856, p. 278.
1793 E	New Orleans		Trans. A. M. A., Vol. II, 1853, p. 665. (Toner.)
1793 E	Philadelphia	West Indies	Carpenter, loc. cit., p. 12. 4,044 deaths in 3 months in a population of 55,000. (Rush.) The epidemic is said to have started in a sailors' boarding house, where the crew of a French corsair (which had been contaminated at the West Indies) were stopping. Bérenger-Féraud, loc. cit., p. 60. Carey, Account of the Malignant Fever, p. 116. (Toner.)
1793	Portsmouth, N. H	do	The infection was brought to this port by a vessel from Martinique. One of the crew died en route. All were well upon arrival. The first case occurred at the house where the captain was stopping. (Bérenger-Féraud, loc. cit., p. 62.)
1793	New York	do	Introduced by vessels from the West Indies, many of which brought refugees who fled from Santo Domingo. A vessel entered from Santo Domingo with several cases of yellow fever on board. (Carey; Carpenter, loc. cit., p. 13.) Sporadic, Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1794 E	New Orleans		Stethoscope, Vol. III, No. 11, 1853, p. 665. (Toner.)
1794 E	Charleston, S. C		W. Hume, Ch. M. J. and Rev., 1852, p. 145. (Toner.)
1794	Norfolk		J. H. Griscom, N. Y. J. M., 1856, p. 369. (Toner.)
1794	Baltimore		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1794 E	Philadelphia		La Roche, B. of H. Rep., Phila., 1870, p. 53. (Toner.)
1794	New York		Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1794	Providence, R. I	West Indies	By boat from the Antilles. (Med. Jour., 1812, p. 28.)
1794	New Haven, Conn	do	Brought there by a trunk of effects of an individual who died of the disease at Martinique. Three persons who assisted in opening the trunk died of yellow fever in a few days. (Bérenger-Féraud, loc. cit., p. 63; W. Hume, Ch. M. J. and Rev., 1860, p. 24). (Toner.)
1795 E	New Orleans		Stethoscope, Vol. III, No. 11, 1853, p. 665. (Toner.)
1795	Charleston, S. C		W. Hume, Ch. M. J. and Rev., 1852, p. 145. (Toner.)
1795	Norfolk		J. H. Griscom, N. Y. J. M., 1856, p. 369. (Toner.)
1795	Baltimore		Toner (U. S. M. H. S. Rep., 1873) and Bérenger-Feraud, loc. cit.

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1795 E	New York	West Indies	The disease was brought here by the brig Zephyr from Port au Prince. There were 700 deaths in 3 months in a population of 40,000. (Bérenger-Féraud, loc. cit., p. 64; Bayley's Account of Yellow Fever, 1795.)
1795 E	Philadelphia		Bérenger-Féraud, p. 64.
1795	Providence, R. I		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1795	Boston		Dowler, Tableau of Yellow Fever, 1853, p. 7. (Toner.)
1796 E	New Orleans		Stethoscope, Vol. III, No. 11, 1853, p. 665.
1796	Wilmington, N. C		J. H. Griscom, N. Y. J. M., p. 369.
1796	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1796	Philadelphia		J. H. Griscom, N. Y. J. M., 1856, p. 368 and 369. (Toner.)
1796	New York		Ed. N. Y. J M., 1856, p. 278.
1796	Providence, R. I		Bérenger-Féraud, loc. cit., p. 64.
1796	Newburyport, Mass		J. H. Griscom, N. Y. J. M., 1856, p. 369.
1796	Portsmouth, N. H		Bérenger-Féraud, loc. cit., p. 65.
1796	Charleston, S. C	West Indies	Brought by a vessel from Havana. (Bérenger-Féraud, loc. cit., p. 65.) W. Hume, Ch. M. J. and Rev., 1852, p. 145.
1796	Boston	do	According to Warren, brought by a vessel from St. Domingo. (Bérenger-Féraud, loc. cit., p. 65.) J. H. Griscom, N. Y. J. M., 1856, p. 369.
1797	New Orleans		Stethoscope, Vol. III, No. 11, 1853, p. 665. (Toner.)
1797	Charleston, S. C		W. Hume, Ch. M. J. and Rev., 1852, p. 145. (Toner.)
1797	Norfolk		J. H. Griscom, N. Y. J. M., 1866, p. 369. (Toner.)
1797	Baltimore		J. H. Griscom, Visitation of Yellow Fever, p. 8. (Toner.)
1797	New York		Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1797 E	Providence, R. I	West Indies	The disease was brought here by the Betsy from the West Indies. (Bérenger-Féraud, loc. cit., p. 65.) 45 deaths, Dowler, Tableau of Yellow Fever, p. 10.
1797 E	Philadelphia	do	The college of physicians of Philadelphia attributed the introduction of the disease this year to the L'Arethuse with slaves from Jamaica and Havana. (Bérenger-Féraud, loc. cit., p. 65.) 1,300 deaths, Rush, Epidemic of 1797. (Toner.) Dowler, p. 10, loc. cit.
1798 E[1]	Charleston, S. C		T. Y. Simons, Ch. M. J. and Rev., 1851, p. 779. (Toner.)
1798	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1798	Baltimore		W. Hume, Ch. M. J. and Rev., 1860, p. 24.
1798 E	Philadelphia	West Indies	The disease was brought by a vessel from St. Domingo. (Caillot, p, 213, and Currie, quoted by Bérenger-Féraud, loc. cit., p. 66.) 3,500 deaths, Rush, epidemic of 1798. (Toner.)
1798 E	Chester, Pa		50 deaths, J. H. Griscom., Visitation of Yellow Fever, p. 9. (Toner.)
1798	Newcastle, Del.		J. Stephens, Med. Mus., 1809, p. 153. (Toner.)
1798 E	Wilmington, Del.		250 deaths, Med. Mus., 1809, p. 153. (Toner.)
1798 E	New York	West Indies	2,080 deaths, Ed. N. Y. J. M., 1856, p. 278. (Toner.) Carpenter, loc. cit., p. 13.
1798 E	Boston		200 deaths, J. H. Griscom, N. Y. J. M., 1856, p. 369. (Toner.)
1798 E	Salem, Mass		J. Gotham, jr., Med. Rep., 1856, p. 563. (Toner.)
1798 E	Portsmouth, N. H	West Indies	100 deaths, brought by a ship from Martinique. (Moreau de Jonnes, p. 178.)
1798	Newburyport, Mass		Brought to the city by an infected vessel, the Sally, with sick aboard. Five days after her arrival the disease declared itself. (Bérenger-Féraud, loc. cit., p. 67.)
1798	Hartford, Conn		Brown, Quarantine, p. 8. (Toner.)
1798 E	New London, Conn		81 deaths, Ed. M. Repos., 1799, p. 211. (Toner.)
1798	Stonington, Conn		J. Comstock, M. Repos., 1807, p. 23. (Toner.)
1799 E	New Orleans		A severe epidemic year. Old, acclimated inhabitants died of the disease. (Bérenger-Féraud, loc. cit., p. 67.) S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1799 E	Charleston, S. C		Contaminated by a Spanish vessel; 239 deaths. (Bérenger-Féraud, loc. cit., p. 67.) 239 deaths. W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)

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[1] A severe epidemic year.

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1799	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1799	Baltimore		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1799 E	Philadelphia		The disease is said to have been brought here this year by the sloop La Marie taken by the Le Gange. (Bérenger-Féraud, loc. cit., p. 67.) 1,000 deaths, La Roche, Ch. M. J. and Rev. 1852, p. 458. (Toner.)
1799 E	New York		76 deaths, Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1800	New Orleans	West Indies	Infected by a vessel from Havana. (Bérenger-Féraud, loc. cit., p. 68.) S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1800 E	Charleston, S. C		184 deaths, W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1800	Wilmington, N. C		M. Repos., 1800, p. 197. (Toner.)
1800 E	Norfolk		250 deaths, Med. Repos., Vol. IV, p. 329. (Toner.)
1800	Baltimore		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1800	Philadelphia		Dowler, loc. cit., 1854, p. 10.
1800	New York		21 deaths, Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1800	New Bedford, Conn		Brown, Quarantine, p. 9. (Toner.)
1800	Hartford, Conn		M. Repos., 1800, p. 197. (Toner.)
1800	Providence, R. I		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1800	Boston		S. Emlen, N. A. M. and S. J., 1828, p. 321. (Toner.)
1801	New Orleans		S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1801	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1801	Baltimore		W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1801	Philadelphia		Do.
1801	New York		140 victims, Dowler, loc. cit., 1854, p. 11.
1801	Block Island, R. I		Aaron C. Willey, M. Repos., 1860, p. 24. (Toner.)
1801	New Bedford, Mass		B. Dowler, loc. cit., 1854, p. 11.
1801	Savannah, Ga		B. Dowler, loc. cit., p. 11.
1801	Norwich, Conn		Do.
1802 E	Philadelphia	West Indies	Probably brought to the city this year by the corsair le Sans-Culottes de Nantes, which captured the Spanish ship la Flore, with yellow fever, from the Antilles, and brought the prize to the city. On the 3d of August, four days after the arrival of the corsair, the disease appeared in a hostelry frequented by the crew; 307 deaths followed. (Cathral and Currie, Bally, p. 455; Bérenger-Féraud, p. 71; Carpenter, sketches from history of yellow fever; also W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1802	New Orleans		B. Dowler, Tableau of Yellow Fever, 1853, p. 12. (Toner.)
1802 E	Charleston		96 deaths, W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1802	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1802 E	Wilmington, Del		86 deaths. Med. Repos., 1803, p. 235. (Toner.)
1802	Baltimore		M. Repos., 1803, p. 100. (Toner.)
1802 E	Boston		60 deaths, J. Gotham, Med. Rep., 1856, p. 563. (Toner.)
1802	New York		2 deaths at Marine Hospital, W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1803	New Orleans		Bérenger-Féraud, loc. cit., p. 73.
1803	Charleston, S. C		Simon's Trans. S. C. Med. Assn., 1851, p. 37. (Toner.)
1803 E	Norfolk		200 deaths. (Bérenger-Féraud, loc. cit., p. 73.) Va. M. J., 1857, p. 95. (Toner.)
1803 E	Philadelphia		195 deaths, W. Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1803 E	New York		600 to 700 deaths, Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1803	New Haven, Conn		Brown, Quarantine, 1872, p. 9. (Toner.)
1804	New Orleans		S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1804 E	Charleston		148 deaths, Simons Trans. S. C. Med. Assn., 1851, p. 37. (Toner.)
1804	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1804	New Haven, Conn		Brown, Quarantine, 1872, p. 9. (Toner.)
1805	Charleston		Simon's Trans. S. C. Med. Assn., 1851, p. 37. (Toner.)
1805	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1805	Baltimore		J. H. Griscom, Visitation of Yellow Fever, p. 13. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1805 E	Philadelphia	West Indies	Brought to the city by the schooner Nancy from St. Domingo. The disease extended along the Delaware to Chester. (Bérenger-Féraud, loc. cit., p. 80.) 300 to 400 deaths, Hume, Ch. M. J. and Rev., 1860, p. 24. (Toner.)
1805	New Haven, Conn		B. Dowler, Tableau of Yellow Fever, p. 13. (Toner.)
1805	Providence, R. I	West Indies	Presumably brought to the city by three vessels, Sainte-Croix, Antigoa, and La Havane, from the West Indies, Med. Journal, 1812, p. 28. (Béranger-Féraud, loc. cit., p. 81.)
1805	Boston		J. H. Griscom, Visitation of Yellow Fever, p. 13. (Toner.)
1805 E	New York		340 deaths, J. H. Griscom, M. Rep., 1856, p. 561. (Toner.)
1806	Richmond, Va		M. Repos., 1807, p. 215.
1806	Newport, R. I		Toner (U. S. M. H. S. Rep., 1873), and Bérenger-Féraud, loc. cit., p. 81.
1807	St. Augustine, Fla		Brown, Quarantine, p. 32. (Toner.)
1807	Savannah		B. Dowler, Tableau of Yellow Fever, p. 14. (Toner.)
1807 E	Charleston, S. C		162 deaths, Simon's Trans. S. C. Med. Assn., p. 38. (Toner.)
1807	Philadelphia		3 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1807	New York		3 deaths at Marine Hospital, J. H. Griscom, M. Rep., 1856, p. 561. (Toner.)
1808 E	St. Marys, Ga	Savannah	The Polly arrived at St. Marys, Ga., from Savannah with two cases on board. The sick disembarked and communicated the disease to the village; of 350 white inhabitants over 300 died; of 150 negroes, only 3 died of the disease. (Bérenger-Féraud, loc. cit., p. 82.)
1808	New York		One death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1808	Savannah		B. Dowler, Tableau of Yellow Fever, p. 14. (Toner.)
1809	New Orleans		S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1809	Philadelphia		B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1809	New York	West Indies	By ship Concord from Havana, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1809 E	Brooklyn		40 deaths, Ed. N. Y. J. M., 1856, p. 278. (Toner.)
1810	Pensacola		Bérenger-Féraud, loc. cit., p. 83.
1810	Philadelphia		3 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1810	New York		1 death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1811	Pensacola		Drake Dis. Int. Valley of N. A., p. 190. (Toner.)
1811	New Orleans		S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1811	Philadelphia		5 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1811	Perth Amboy, N. J	West Indies	The brig Favorite brought the disease from Havana to Perth Amboy. (Bowen on the Yellow Fever.) (Reports of the N. Y. B. of H., Vol. IV, p. 335.) (Bérenger-Féraud, loc. cit., p. 83.)
1812	New Orleans		S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1812	Charleston, S. C		W. Hume, Ch. M. J. and Rev., 1854, p. 145. (Toner.)
1813	Philadelphia		6 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1814	Philadelphia		7 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1815	Philadelphia		2 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1815	New York		7 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1816	Philadelphia		2 deaths, B. Dowler, Tableau of Yellow Fever, 1853, p. 14. (Toner.)
1816	New York		Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1817 E	New Orleans	West Indies	Brought by the English cutter Phœnix from Havana. (Carpenter, loc. cit., p. 17.) 800 deaths, S. Chaillé, Va. M. J., 1858, p. 498. (Toner.)
1817	Savannah		Bérenger-Féraud, loc. cit., p. 88.
1817 E	Charleston, S. C		272 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1817	New York		4 deaths at marine hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1818 E	Charleston, S. C		115 deaths. (Bérenger-Féraud, loc. cit., p. 88.)
1818	New York		4 deaths at marine hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1818	Baltimore	Havana	Carpenter, loc. cit., p. 13.
1818 E	New Orleans		115 deaths, Dowler, N. O. M. J., 1859, p. 308. (Toner.)
1819 E	do	West Indies	Infected by a vessel from Havana. (Bérenger Féraud, loc. cit., p. 89.) There were 2,190 deaths. (S. Chaillé, Va. M. J., 1858, p. 498, Toner.)
1819 E	Mobile		274 deaths, P. H. Lewis, N. O. M. J., Vol. I, No. 4, 1845, p. 284. (Toner.)
1819	Savannah		A. M. Rec., 1820, p. 212. (Toner.)
1819 E	Charleston, S. C.		117 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1819	Philadelphia		13 deaths, S. Emlen, N. A. M. and S. J., 1828, p. 321. (Toner.)
1819	Baltimore		D. M. Reese, Yellow Fever, 1819, p. 27. (Toner.)
1819 E	New York		37 deaths, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1819	New Haven, Conn		F. Pascalis, M. Repos., 1820, p. 239. (Toner.)
1819	Boston		S. Emlen, N. A. M. and S. J., 1828, p. 321. (Toner.)
1820	New Orleans	Havana	Carpenter, loc. cit. (S. Chaillé, Va. M. J., 1858, p. 498.)
1820	Savannah		N. O. M. and S. J., 1827, p. 1. (Toner.)
1820	Baltimore		H. G. Jameson, A. J. M. C., 1856, p. 372. (Toner.)
1820 E	Philadelphia		83 deaths, S. Jackson, A. M. Rec., 1821, p. 689. (Toner.)
1820	New York		2 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1820	Middletown, Conn	Santiago de Cuba	Carpenter, loc. cit., and M. Tully, N. Y. M. and Ph. J., 1822, p. 153.
1821 E	St. Augustine, Fla	Havana	Carpenter, loc. cit. The disease was brought to the United States from Havana, and was severe in several localities. (Bérenger-Féraud, loc. cit., p. 90.) 140 deaths, J. Gotham M. Rep., 1856, p. 564. (Toner.)
1821	Savannah		Bérenger-Féraud, loc. cit., p. 89.
1821	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1821	Wilmington, N. C		J. B. Hill, A. M. Rec., 1822, and Brown, Quarantine, p. 18. (Toner.)
1821	Baltimore		H. G. Jameson, A. J. M. C., 1856, p. 372. (Toner.)
1821	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1821	New York		16 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1822 E	Pensacola	Havana	Brought to the United States by emigrants from the West Indies. (Bérenger-Féraud, loc. cit., p. 100.) Carpenter, loc. cit. 259 deaths, Drake, Dis. Int. Valley of N. A., p. 229. (Toner.)
1822 E	New Orleans	Pensacola	239 deaths, Trans. A. M. A., 1851, p. 207. (Toner.) Refugees from Pensacola carried the disease on the Ann and Elisa to New Orleans. (Bérenger-Féraud, loc. cit., p. 100, and Carpenter.)
1822	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1822	Charleston, S. C		2 deaths, N. O. M. J., 1859, p. 597. (Toner.)
1822	Baltimore		H. G. Jameson, A. J. M. C., 1856, p. 372. (Toner.)
1822 E	New York	Havana	The ship Enterprise from Havana brought the disease into port. (Bérenger-Féraud, loc. cit., p. 100, and Carpenter, loc. cit.) 230 deaths, Ed. N. Y. J. M., 1856, p. 281.
1823	New Orleans	West Indies	The first case occurred among West Indies' shipping. (Carpenter.) 1 death, Trans., A. M. A., 1851, p. 207. (Toner.)
1823	Key West		Bérenger-Féraud, loc. cit., p. 100.
1823	New York		5 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281.
1823	Brooklyn, N.Y.	New Orleans	Infected by the Diana, which left New Orleans at the height of the epidemic. The vessel was detained in quarantine 30 days without disinfection. (Bérenger-Féraud, loc. cit., p. 100.) Carpenter, Sketches of Yellow Fever. (Toner.)
1823	Natchez, Miss	do	Bérenger-Féraud, loc. cit., p. 100, and Carpenter.

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1824 E	New Orleans	Havana	118 deaths. Brought to the city this year by one of the crew of a barge. The man had communication with the schooner Emigrant from Havana, which boat had yellow fever cases on board. (Bérenger-Féraud, loc. cit., p. 102; also Carpenter and Trans. A. M. A., 1851, p. 207.)
1824	Key West		B. Ticknor, N. A. M. and S. J., 1827, p. 213.
1824	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1824 E	Charleston		235 deaths, Dowler N. O. M. J., 1859, p. 597. (Toner.)
1824	New York		8 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1825 E	New Orleans		49 deaths, Trans. A. M. A., 1851, and Drake, p. 197. (Toner.)
1825	Mobile		Drake, Dis. Int. Valley of N. A., p. 219. (Toner.)
1825	Pensacola	West Indies	West Indian vessel. (Am. Pub. Health Assn., Vol. IV.) Brown, Quarantine, p. 36. (Toner.)
1825	Charleston, S. C		2 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1825	New York		1 death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1826	New Orleans		5 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1826	Norfolk		Committee's report, p. 14. (Toner.)
1826	New York		2 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1827 E	New Orleans		109 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1827	Mobile		Drake, Dis. Int. Valley of N. A., p. 219. (Toner.)
1827	Pensacola		Med. Statistics, U. S. Army, p. 58.
1827	Savannah		N. O. M. and S. J., Vol. X, p. 145. (Toner.)
1827	Charleston, S. C		64 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1827	New York		4 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1828 E	New Orleans		130 deaths, Trans. A. M. A., 1851, p. 207 and Drake, p. 197. (Toner.)
1828 E	Charleston		26 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1828	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1828	New York		Several cases (Bérenger-Féraud, loc. cit. p. 105), no deaths, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1829 E	New Orleans		215 deaths, Trans. A. M. A. 1851, p. 207 and Drake, p. 197. (Toner.)
1829 E	Mobile		130 deaths, Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1829	Key West		C. C. Dupré, Am. J. of Med. Sci., 1841, p. 380. (Toner.)
1829	New York		No deaths, Ed. N. Y. J. M., 1856, p. 281. (Toner.) Few cases. (Bérenger-Féraud, loc. cit., p. 106.)
1830 E	New Orleans		117 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1830 E	Charleston		39 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1830	New York		Several cases (Bérenger-Féraud, loc. cit., p. 107), 1 death, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1831	New Orleans		2 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 107. (Toner.)
1831	Savannah		Bérenger-Féraud, loc. cit., p. 108.
1832	New York		1 death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1832	New Orleans		18 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1833 E	do		210 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1833	New York		2 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1834 E	do		95 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1834 E	Charleston		49 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1834	New York		1 death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1834	Pensacola		Drake, Dis. Int. Valley of N. A., p. 232. (Toner.)
1835 E	New Orleans		284 deaths, Trans. A. M. A., p. 207, 1851, and Drake, p. 197. (Toner.)
1835	Charleston		25 deaths, Dowler, N. O. M. J, 1859, p. 597. (Toner.)
1835	New York		2 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 281. (Toner.)
1836	New Orleans		5 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1837 E	do	Havana	Brought to the city by boats from Havana to New Orleans. There were 442 deaths from the disease, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.) Carpenter (loc. cit.). The disease was brought by West Indian vessels.
1837 E	Mobile	New Orleans	130 deaths, Drake, Dis. Int. Valley of N. A., p. 220. (Toner.)
1838 E	Charleston		351 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1838	New Orleans		17 deaths, Trans. A. M. A., 1851, p. 207, and Drake, p. 197. (Toner.)
1838	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1838	St. Augustine		C. C. Dupré, Am. J. Med. Sci., 1841, p. 384. (Toner.)
1838	New York		8 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1839 E	New Orleans	Havana	452 deaths. Brought from Havana. (Bérenger-Féraud, loc. cit., p. 111; also Carpenter and Trans. A. M. A., 1851.)
1839 E	Galveston	New Orleans	250 deaths, Galv. M. J., 1867, p. 856. (Toner.)
1839	Biloxi, Miss		Drake, Dis. Int. Valley of N. A., 191. (Toner.)
1839	Pensacola		Drake, Dis. Int. Valley ot N. A., p. 233. (Toner.)
1839 E	Mobile	New Orleans	650 deaths, Drake and Brown, Quarantine, 1872. (Toner.) Carpenter, loc. cit.
1839	St. Augustine		C. C. Dupré, Am. J. Med. Sci., 1841, p. 384. (Toner.)
1839	Tampa		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1839	New York		4 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1839 E	Charleston	Havana	134 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.) West Indian vessels. (Carpenter.)
1840	New Orleans		3 deaths, Trans. A. M. A., 1851, p. 207. (Toner.)
1840	Charleston		22 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1841 E	New Orleans	Havana	594 deaths, Trans. A. M. A., 1851, p. 207. (Toner.) Carpenter.
1841	Pensacola		Drake, Dis. Int. Valley of N. A., p. 233. (Toner.)
1841	Mobile		J. H. Lewis, N. O. M. J., 1844, p. 31.
1841 E	St. Augustine		26 deaths, C. C. Dupré, Am. J. Med. Sci., 1841, p. 384. (Toner.)
1841 E	Key West		26 deaths, C. C. Dupré, Am. J. of Med. Sci., 1841, p. 380. (Toner.)
1841	Charleston		Simons Trans. S. C. Med. Assn., p. 59. (Toner.)
1842 E	New Orleans	West Indies	211 deaths, Trans. A. M. A., 1851, p. 207. (Toner.) Carpenter.
1842	Pensacola		S. C. Laurason, Maryland M. and S. J., 1843, p. 393. (Toner.)
1842 E	Mobile		60 deaths, Drake, p. 222, Brown, Quarantine, 1872. (Toner.)
1843 E	New Orleans	Havana, Vera Cruz	487 deaths. Trans. A. M. A., 1851, p. 207. (Toner.) Carpenter.
1843 E	Mobile		240 deaths, Drake, loc. cit. (Toner.)
1843	Pensacola		Dr. Wedderburn, Rep. of San. Com., p. 125. (Toner.)
1843	Charleston		1 death, Dowler, N. O. M. J., p. 597. (Toner.)
1843	New York		5 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1844 E	Galveston		400 deaths, Galv. M. J., 1867, p. 838. (Toner.)
1844 E	New Orleans		148 deaths, Trans. A. M. A., 1851, p. 207, and Drake. (Toner.)
1844	Mobile		Drake, Dis. Int. Valley of N. A., p. 191. (Toner.)
1844	Pensacola		Dr. Wedderburn, Rep. of San. Com., p. 125. (Toner.)
1844	New York		2 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1845 E	New Orleans		148 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1845	Pensacola		Several cases, Brown, Quarantine, p. 36. (Toner.)
1846 E	New Orleans		146 deaths, Chaillé, Va. M. J., 1856, p. 400. (Toner.)
1846	Pensacola		Brown, Quarantine, p. 36. (Toner.)
1847 E	Galveston		200 deaths, Galv. M. J., 1867, p. 838. (Toner.)
1847	New Orleans	Vera Cruz	Brought from Vera Cruz this year to New Orleans according to Faget, quoted by Bérenger-Féraud, loc. cit., p. 118. There were 2,259 deaths, Chaillé, Va. M. J., 1856, p. 449. (Toner.)
1847	Biloxi, Miss		E. D. Fenner, N. O. M. and S. J., 1848, p. 1192. (Toner.)
1847 E	Mobile		76 deaths, Brown, Quarantine, and Fenner's South. Med. Reports, Vol. II, p. 304. (Toner.)
1847	Pensacola		Dr. Wedderburn, Rep. of San. Com., p. 125. (Toner.)
1848 E	New Orleans		850 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1848 E	Mobile		75 deaths, Fenner, South. Med. Rep., Vol. II, p. 304. (Toner.)
1848	Pensacola		Dr. Wedderburn, Rep. of San. Com., p. 125. (Toner.)
1848	Charleston		Bérenger-Féraud, loc. cit., p. 118.
1848	New York		12 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284, and Trans. A. M. A., Vol. VII, p. 162. (Toner.)
1848	Staten Island, N. Y		Bérenger-Féraud, loc. cit., p. 118.
1849 E	New Orleans		737 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1849 E	Mobile		50 deaths, Fenner, South. Med. Rep., Vol. II, p. 304. (Toner.)
1849 E	Charleston		125 deaths, Dowler, N. O. M. J., 1859, p. 597. (Toner.)
1850 E	New Orleans		102 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1851	do		16 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1851	Mobile		Brown, Quarantine, 1872, p. 43.
1852 E	New Orleans		415 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1852	Savannah		19 deaths, R. C. Mackall, Ch. M. J. and Rev., 1855, p. 150. (Toner.)
1852 E	Charleston		310 deaths, Dowler, N. O. M. J., p. 597. (Toner.)
1852	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1852	Portsmouth, Va		Portsmouth Relief Assn. Report, p. 91. (Toner.)
1852	New York		1 death at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1853 E[1]	Galveston		536 deaths, Ed. M. and S. Rep., Vol. XVII, 1867, No. 14, p. 297. (Toner.)
1853 E	New Orleans	West Indies	7,970 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.) Many cities in Texas and Louisiana were visited by the disease this year. According to Faget, the disease was brought this year by the English vessel Caboden Castle from Jamaica. (Bérenger-Féraud, loc. cit., p. 123.)
1853	Biloxi, Miss		J. C. Mott, N. O. M. and S. J., 1854, p. 571. (Toner.)
1853 E	Norfolk	West Indies	Infected by a vessel from the Antilles. There were 1,600 deaths.
1853 E	Mobile		115 deaths, N. O. M. and S. J., 1854, p. 571.
1853	Pensacola		E. D. Fenner, History of Yellow Fever, N. O., 1853, p. 49. (Toner.)
1853 E	Key West		112 deaths, Army Med. Statistics, p. 323. (Toner.)
1853	Tampa		Army Med. Statistics, p. 323. (Toner.)
1853	Savannah		R. C. Mackall, Ch. M. J. and Rev., 1855, p. 150. (Toner.)
1853 E	Philadelphia		128 deaths, W. Jewell, N. Y. J. M., 1856, pp. 149, 246, and Brown, Quarantine, p. 10. (Toner.)
1853	New York		14 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1854 E	New Orleans		The disease was carried up the Mississippi Valley as far as St. Louis, Mo. (Bérenger-Féraud, loc. cit.) 2,423 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1854	Key West		Ed. N. O. M. and S. J., 1854, p. 423. (Toner.)

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[1] A widespread epidemic year.

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1854	Mobile		Ed. Nash. J. M. and S., 1854, p. 345. (Toner.)
1854 E	Savannah		580 deaths, Hume, Charleston, M. J., Vol. X, p. 31. (Toner.)
1854	Pensacola		R. B. S. Hargis, N. O. M. N., 1859, p. 727. (Toner.)
1854 E	Charleston		627 deaths, Dowler, N. O. M. J., p. 597. (Toner.)
1854	Norfolk		Va. M. J., 1857, p. 95. (Toner.)
1854 E	Galveston		404 deaths, Ed. M. and S. Rep., Vol. 17, 1867, No. 14, p. 297. (Toner.)
1854	Philadelphia		Ed. Nash. J. M. and S., 1854, p. 345. (Toner.)
1854	New York		20 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1854	Portsmouth, Va		Portsmouth Relief Assn., Rep., p. 91. (Toner.)
1855 E	New Orleans		The Mississippi Valley was again infected this year as far north as Memphis. (Bérenger-Féraud, loc. cit.) 2,670 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1855 E	Norfolk	St. Thomas	1,807 deaths, Portsmouth Relief Assn., Report. (Toner.) Amer. P. H. A., Vol. IV, p. 286.
1855 E	Portsmouth, Va	do	1,000 deaths, Portsmouth Relief Assn., Report, p. 77. Amer. P. H. A., Vol. IV, p. 286.
1855	New York		5 deaths at Marine Hospital, Ed. N. Y. J. M., 1856, p. 284. (Toner.)
1856 E	New Orleans		74 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1856 E	Charleston		211 deaths, Dowler, N. O. M. J., p. 597. (Toner.)
1856	Brooklyn		3d Nat. Quarant. and San. Convention, p. 41.
1857 E	New Orleans		199 deaths, Chaillé, Va. M. J., 1856, p. 499. (Toner.)
1857	Charleston		13 deaths, Dowler, N. O. M. J., p. 597. (Toner.)
1858 E	Galveston		344 deaths, Ed. M. and S. Rep., Vol. XVII, 1867, No. 14, p. 297. (Toner.)
1858	Pensacola		R. B. S. Hargis, N. O. M. N., 1859, p. 727. (Toner.)
1858 E	New Orleans	St. Thomas	The Elisabeth Helen, contaminated at St. Thomas, brought the fever to New Orleans; 3,889 deaths followed. (Bérenger-Féraud, loc. cit., p. 134; also Ed. Med. Rep., 1858, Vol. I, No. 4, p. 72.)
1858	Biloxi, Miss		S. Chaillé, Va. M. J., 1858, p. 77. (Toner.)
1858	Savannah		S. Chaillé, Va. M. J., 1858, p. 491. (Toner.)
1858	Boston		F. E. Oliver, B. M. and S. J., 1858, p. 140. (Toner.)
1858 E	Charleston		717 deaths, Dowler, N. O. M. J., p. 597. (Toner.)
1858	Mobile		Ed. Va. M. J., 1858, p. 517. (Toner.)
1859 E	Galveston		186 deaths, Ed. M. and S. Rep., Vol. XVII, 1867, No. 14, p. 297. (Toner.)
1862 E	Key West	Havana	71 deaths, Ed. M. and S. Rep., 1862, p. 513. (Toner.) A. P. H. A., Vol. IV.
1862	Charleston		Brown, Quarantine, p. 29. (Toner.)
1862	New Orleans		Fenner, S. J. of M. S., May, 1866. (Toner.)
1862	Wilmington, N. C	Havana	446 deaths, W. T. Wragg, N. Y. J. M., 1869, p. 478; A. P. H. A., Vol. IV, and p. 225. (Toner.)
1863	Pensacola		B. F. Gibbs, Am. J. M. Sci., 1866, p. 340. (Toner.)
1863	New Orleans		Chaillé, p. 8. (Toner.)
1864 E	Galveston		259 deaths, Ed. M. and S. Rep., Vol. XVII, 1867, No. 14, p. 297. (Toner.)
1864	Key West		E. B. Hunt, Med. Rep., 1864, p. 340. (Toner.)
1864	Charleston		Trans. A. M. A., Vol. XXIII, p. 292. (Toner.)
1864 E	Newbern, N. C		700 deaths, Rep. Med. Inspector, U. S. A.; Dec. 31, 1864. (Toner.)
1864	New Orleans		Harris Sanitary Com., p. 264. (Toner.)
1865	Key West	Havana	A. P. H. A., Vol. IV, and Brown, Quarantine, p. 40. (Toner.)
1866	Galveston		Galv. M. J., 1866, p. 338. (Toner)
1867 E	New Orleans		The freedom from yellow fever during the years of the war is accounted for by the blockade of the city. A fact brought forward by Dr. Formento to prove that the disease was not endemic in that city. (Bérenger-Féraud, loc. cit., p. 149.) 3,093 deaths, Ed. N. O. M. J., 1868, p. 194. (Toner.)
1867 E	Pensacola		34 deaths, M. Rep., 1868. p. 227. (Toner.)
1867	Mobile		Brown, Quarantine, 1872, p. 44. (Toner.)
1867	Key West		Surg. Gen'l's Office Circular No. 1, 1868, p. 152. (Toner.)
1867 E	Galveston		1,150 deaths, S. M. Welch, Galv. M. J., Vol. I, No. 2, p. 83. (Toner.)
1868	Baltimore		Bérenger-Féraud, loc. cit., p. 144, and Brown, Quarantine, p. 14. (Toner.)
1869	Key West	Cuba	A. P. H. A., Vol. IV; Brown, Quarantine, p. 41. (Toner.)

TABLE SHOWING YEARS IN WHICH YELLOW FEVER HAS INVADED THE SEABOARD CITIES OF THE UNITED STATES, ETC.—Continued.

Year.	Locality.	Origin.	Remarks.
1869	New Orleans	Cuba	A. P. H. A., Vol. IV.
1870 E	do	Honduras	587 deaths, J. C. Fuget, N. O. Med. and S. J., Vol. I, No. 2, 1873. (Toner.) Board of Health La., 1870.
1870	Mobile		Bérenger-Féraud, loc. cit., p. 145.
1870	Philadelphia	West Indies	18 deaths, La Roche, Yellow Fever, 1870, pp. 20, 26.
1871	Cedar Keys, Fla	Havana	A. P. H. A., Vol. IV. Med. and Surg. Rep., No. 17, p. 377, Vol. XXV. (Toner.)
1871	Tampa, Fla	do	A. P. H. A., Vol. IV.
1871 E	Charleston		213 deaths, Trans. A. M. A., Vol. XXIII, p. 293. (Toner.)
1871 E	New Orleans	Cienfuegos, Havana	Board of Health La., 1871, 55 deaths, Rep. N. O. B. of H., 1871. (Toner.)
1872 E	do		40 deaths, Rep. N. O. B. of H., 1872, p. 17. (Toner.)
1872	New York		B. M. and S. J., Vol. LXXX, No. 23, p. 587. (Toner.)
1873 E	New Orleans	Havana	U. S. M. H. S. Rep., 1873, 225 deaths; B. of H. La., 1873; A. P. H. A., Vol. IV.
1873 E	Pensacola	do	61 deaths, R. F. Michel, Charleston M. J. and R., 1874, Vol. I, p. 289. (Toner.) A. P. H. A., Vol. IV; J. M. Woodworth, U. S. M. H. S. Rep., 1873.
1874	do	do	The city was infected through the Castropoe from Havana. (Rep. U. S. Med. Com., U. S. M. H. S. Rep., 1874; A. P. H. A., Vol. IV.)
1874	New Orleans	do	B. of H. La., 1874.
1875 E	Barrancas, Fla	do	U. S. M. H. S. Rep., 1875.
1875 E	Pascagoula, Miss	do	U. S. M. H. S. Rep., 1875, 60 deaths.
1875 E	Key West		38 deaths. (U. S. M. H. S. Rep,, 1875.)
1876 E	Brunswick	Havana	112 deaths. (Smith in the U. S. M. H. S. Reps., 1876–77, p. 185.
1876	Doboy, Ga	do	A. P. H. A., Vol. IV, p. 251, and U. S. M. H S. Rep., 1876-77.
1876	Savannah	do	U. S. M. H. S. Rep., 1876–77, p. 180; A. P. H. A., Vol. IV, 251.
1877	Fernandina	do	A. P. H. A., Vol. IV.
1878 E	Memphis and all the Mississippi Valley to Cairo, Ill.		
1878	New Orleans	do	A. P. H. A., Vol. IV, and Sternberg. The steamer Emily Souder brought the disease to the city from the Antilles. (Bérenger-Féraud, loc. cit.) A severe epidemic year. There were in the United States 125,000 cases and 12,000 deaths. (N. Y. Med. R., Dec., 1878; Bérenger-Féraud, loc. cit., p. 152).
1878	New York		Bérenger-Féraud, loc. cit., p. 152.
1879	New Orleans	West Indies	The disease extended along the Mississippi as far as Memphis. The disease was brought from the Antilles to New Orleans by the Plymouth. (Med. Rep. U. S. Navy, 1879, Dr. Woolverton.)
1880	Key West		
1882	Galveston		
1882	New Orleans	Havana	National B. of H. Rep , 1882.
1882 E	Pensacola	Matanzas	U. S. M. H. S. Rep., 1883, 192 deaths.
1883 E	Brewton, Ala	Pensacola	M. H. S. Rep., 1884.
1883	Pensacola	Havana	Sporadic cases, but there was an epidemic at the navy-yard, 9 miles from Pensacola. (M. H. S. Rep., 1884, p. 260.)
1884	Pensacola (?)		
1887 E	Key West	Havana	Abstract of San. Rep., U. S. M. H. S., 1887, and U. S. M. H. S. Rep., pp. 12, 13, 1887; 280 cases and 62 deaths up to September.
1887	Tampa, Fla		U. S. M. H. S. Rep., 1887–88.
1888 E	Jacksonville, Fla		Plant City and neighboring cities. U. S. M. H. S. Rep., 1888.
1888	Tampa, Fla		Probably from Tampa epidemic of 1887.
1890	Brunswick, Ga		
1893 E	Brunswick, Ga., and adjacent islands.	do	52 deaths. Abstract of San. Rep., 1894, p. 81; U. S. M. H. S. Rep., 1893.
1893	Satilla River, Ga	do	Do.

NATIONAL QUARANTINE LAWS AND REGULATIONS.

During the year, as a result of the inspection of local quarantines under the law of February 15, 1893, the right of disinfection and granting free pratique to infected vessels was taken from one Southern quarantine because of faulty administration and the danger resulting therefrom. Acquiescence in the assumption of Federal control was readily granted in two other States, namely, in Texas, on the border (Eagle Pass), previously noted, and in the State of North Carolina. The Marine-Hospital Bureau now exercises absolute quarantine control over the Pacific Coast, the Gulf Coast east of Louisiana to Mobile Bay, in Georgia, North Carolina, Virginia, Delaware, and Pennsylvania. It materially assists, by the operation of its stations, the quarantine service of the States of Florida and South Carolina, and, as previously stated, exercises a supervision over all State and local quarantines.

THE LOCAL QUARANTINE FOR PASCAGOULA, MISS.

Early in May I personally inspected Round Island, the quarantine station for Pascagoula and Scranton, Miss., and, by telegraph, requested that the collector of customs for the Shieldsboro district be directed to admit no vessel without the quarantine certificate of the United States quarantine officer at Ship Island, which is near at hand. I stated in my telegram that I had personally observed violations of the regulations. Vessels direct from the wharves of Habana were being admitted without proper disinfection by the quarantine officer at Round Island. The danger was absolute. The following letter was, therefore, addressed to the collector of customs:

TREASURY DEPARTMENT, *Washington, May 11, 1895.*

SIR: The following telegram was sent you to-day: "You are directed hereafter, until further direction, to admit no vessel from infected ports to entry without a certificate of free pratique from United States quarantine officer at Ship Island."

This action is taken on the recommendation of the Supervising Surgeon-General of the Marine-Hospital Service, who reports no facilities for the care of suspected or dangerous vessels coming from infected ports by the local quarantine officer.

Respectfully, yours,

S. WIKE, *Acting Secretary.*

COLLECTOR OF CUSTOMS,
Shieldsboro, Miss.

In reply to a letter of the collector of May 17, it was stated that a certificate of pratique from the Government quarantine officer at Tortugas would be accepted as well as that of the officer at Gulf quarantine—Ship Island.

June 11, Dr. Hyer, president of the Mississippi State board of health, addressed the Department, claiming that the order of May 11 would result in hardship to the business of the port of Pascagoula, owing to the fact that all vessels, whether from infected ports or not, were required to produce this certificate, and stating that in order to procure this document great expense for towage, pilotage, etc., would have to be incurred, and claiming that in the case of vessels from European ports this would be unnecessary.

June 18, in reply to the communication of Dr. Hyer, he was informed that the order was considered necessary owing to the total absence of facilities for disinfection at Pascagoula, and that unfavorable comment upon this state of affairs had been made in Scranton.

Again, on July 1, Dr. Hyer transmitted a letter from H. F. Krebs, president of the board of health of Jackson County, Miss., requesting that the order of May 11 might be so modified as not to include vessels from European ports.

July 6, 1895, the order already quoted was so modified as to not include vessels from noninfected European ports.

FINES IMPOSED.

During the fiscal year ended June 30, 1895, seventy fines were imposed upon vessels for violation of the law of February 15, 1893, concerning consular bills of health.

LEGAL DECISION AFFECTING THE LAW OF FEBRUARY 15, 1893.

In my annual report for 1894, page 263, is inserted the opinion of the judge of the United States district court for the southern district of Florida, in the case of The United States *v.* The Schooner *Javirena*, one of the small Spanish smacks from Habana which, without bills of health, hover in the neighborhood of the Florida coast. In this opinion, the court found that the *Javirena* had not violated the act of February 15, 1893, because she had not attempted to enter any port, but had violated section 2773, Revised Statutes of the United States, because she had arrived within the limits of the collection district of the United States, and had attempted to depart therefrom without making entry. In a footnote in the last Annual Report, page 264, it is stated that this decision was reversed by the United States circuit court of appeals, fifth circuit, and that the opinion of the court would be included in the next Annual Report of the Service. Following is the opinion referred to:

[United States circuit court of appeals. Fifth circuit. November term, A. D. 1894. Filed February 5, A. D. 1895. Serero Gonzalez, claimant. Schooner Javirena *v.* The United States.]

Appeal from the district court of the southern district of Florida.

Before Pardee and McCormic, circuit judges, and Bruce, district judge.

Pardee, circuit judge, delivered the opinion of the court:

In July, 1894, the small Spanish schooner *Javirena,* ordinarily known as a fishing schooner, sailed from Habana, in the island of Cuba, bound for no foreign port, but with a clearance to permit her to fish in Spanish waters and in the open seas; she was without cargo and carried on board only the stores and fishing appliances supposed to be necessary for a fishing trip of two or three weeks.

On the 24th of July, 1894, she was found at anchor by the United States revenue cutter *McLane* in the open waters off the coast of Florida, about 5 or 6 miles from the mainland and 2¾ miles from North Anclote Key, which is an uninhabited sand key about 4 miles off the main coast of Florida near to Anclote Key, another sand key, on which is a light-house and to the eastward of which is an anchorage. Upon the approach of the revenue cutter the *Javirena* got under way, apparently to go further out to sea or on her regular fishing business. The commanding officer of the revenue cutter seized the *Javirena* and carried her 80 miles to the port of Tampa and there turned her over to the collector of that port for violation of sections 2773, 2774, 2775, and 2811 of the Revised Statutes of the United States, all of which are found in that chapter of the Revised Statutes relating to the "entry of merchandise." At the time the *Javirena* was seized she had on board about two-thirds of a full cargo of fish, lately caught, and among her stores 20 or 30 gallons of wine, and about as much more of arguadiente. There was no charge made against the *Javirena* for smuggling, or even for communicating, or attempting to communicate, with the mainland for any purpose whatever. The collector of the port of Tampa imposed fines on the *Javirena* in the total sum of $1,900 for the violation of sections 2773, 2774, and 2775, Revised Statutes of the United States, and announced to the master of the vessel that the vessel was also reported for violation of section 2811, Revised Statutes, which requires the master of any vessel laden with merchandise and bound to any port of the United States, to deliver manifest when boarded within 4 leagues of the coast, and also the first and second sections of the act of Congress, approved February 15, 1893, in not having the health certificate required thereby.

The fines not being paid, an information was filed in the district court for the southern district of Florida against the *Javirena* to recover the amount of said fines, alleging them to have been imposed on the master and to be due from him under the sections 2773, 2774, and 2775, aforesaid, and alleging that the *Javirena* had arrived within the limits of the collection district of Tampa, Fla., and had attempted to depart from said collection district without entry made with the collector of the port of said district. When the evidence was produced in the district court it was found that the *Javirena* was not arrested within the limits of the collection district of Tampa, but in the limits of the collection district of St. Marks, and thereupon it appears that the libel was amended without objection, so as to charge the *Javirena* with having arrived within the limits of the collection district of St. Marks, and with having attempted to depart therefrom without entry made with the collector thereof.

The master of the *Javirena* testified that at the time and place of seizure his vessel had been at anchor for eight hours, and the cause of his anchoring was that he had some damages on the schooner to be repaired, one of the stays or shrouds of the foremast having been broken, and that he could not make his repairs without coming to anchor; and his evidence does not appear to have been disputed.

The court found that the master of the schooner *Javirena* had not violated sections 2774 and 2775, Revised Statutes of the United States, because the *Javirena* had not arrived at any port of the United States and had not violated the act of 1893, because she had not attempted to enter any port, but had violated section 2773, because she had arrived within the limits of the collection district of the United States, and had attempted to depart therefrom without making entry; and thereupon condemned the *Javirena* and her claimant in the sum of $400, together with costs, charges, and expenses to be taxed.

From this decree an appeal is prosecuted in this court, with errors assigned as follows:

First. "That the court erred in finding from the evidence that the defendant vessel was subject to a lien for violation by the master of section 2773, Revised Statutes of the United States."

Second. "That the court erred in permitting the information to be amended so as to show that a fine had been incurred by the vessel after the case had been tried on an information charging that a fine had been imposed on the master."

Section 2773, Revised Statutes of the United States, is as follows:

"If any vessel, having arrived within the limits of any collection district from any foreign port, departs, or attempts to depart from the same, unless to proceed on her way to some more interior district to which she may be bound, before report or entry shall have been made by the master with the collector of some district, the master shall be liable to a penalty of four hundred dollars; and any collector, naval officer, surveyor, or commander of any revenue cutter may cause such vessel to be arrested and brought back to the most convenient port of the United States. If, however, it is made to appear by the oath of the master, and of the person next in command, or by other sufficient proof to the satisfaction of the collector of the district within which such vessel shall afterwards come, or to the satisfaction of the court in which the prosecution for such penalty may be had, that the departure, or attempt to depart, was occasioned by stress of weather, pursuit or duress of enemies, or other necessity, the penalty imposed by this Section shall not be incurred."

Under the facts of this case, it is by no means clear that the *Javirena* arrived within the limits of the collection district of St. Marks within the meaning and purview of this section. It may be conceded that the territorial and jurisdictional limits of the district of St. Marks extended beyond and included the place where the *Javirena* entered, but if the evidence of the master is considered, in connection with the conceded facts, the *Javirena* did not arrive within the limits of the said collection district for any purpose of business with the mainland nor as one of the terminals of her voyage.

Under other sections of the Revised Statutes, where duties in regard to entry and register are required of vessels arriving in districts or ports, the arrival has generally been construed to mean something more than putting into port from stress of weather or circumstances.

In United States *v.* Shackford (5 Mason, 445), affirming the same case in first Ware, 177, Justice Story held that "To affect the master of a vessel with the penalty provided for the nondelivery of a temporary register granted under the third section of the coasting act of 1793, there must not only be an arrival at the port to which the vessel belongs, but it must be an arrival there, not by accident, or from necessity, but intentionally, as one of the termini of the voyage." (See also Harrison *v.* Vose, 9 How., 372; Sols *v.* White, 1 Ware, 277.)

In Parsons *v.* Hunter (2 Sumner, 419), Mr. Justice Story, in citing with approval United States *v.* Shackford (supra), holds that, under section 4 of the act of 1805 requiring the master of a United States ship on its arrival at a foreign port to deposit its register, sea-letter, or Mediterranean passport, that the term "arrival" means arrival at a voluntary port of destination for the purpose of trade. (See also Treasury Regulations, 1892, art. 48.)

Under these decisions can it be said that the *Javirena*, in coming to anchor within 5 miles of the mainland of Florida, in what was apparently otherwise the open sea, at a place 85 miles from the port of entry of the district and for the purpose of repairing a disabled mast, and not for any purpose of trade or business, arrived within the limits of the collection district of St. Marks, so as to require an entry at the custom-house of said district before continuing her voyage?

Section 2773 (supra) is substantially the same as section 29 of the act of Congress entitled "An act to regulate the collection of duties on imports and tonnage, approved March 2, 1799." (1 Stat. L., 627–648.) This section was before the Supreme Court of the United States in the *Apollon.* (9 Wheat, 362.) That case was a suit for damages occasioned by an asserted illegal siezure of the French ship *Apollon* and cargo, and the construction of the twenty-ninth section of the act of 1799 was directly before the court. After discussing its bearing upon the case in hand, the court says:

"The true exposition of the twenty-ninth section is, that it means to compel an entry of all vessels coming into our waters being bound to our ports; and the very exception of vessels bound to some interior district demonstrates the sense of the legislature by indicating the entire stress laid upon the destination of the vessel."

The *Apollon* has been cited many times with approval by the Supreme Court on other points than the one here in question, but in respect to the construction of the twenty-ninth section, it has never been questioned or doubted. It appears to control this case.

Laying aside all question as to whether the *Javirena* arrived within the actual territorial limits of the collection district of St. Marks, and whether she was there for the mere temporary purpose of repair, it is clear that the *Javirena* was not a vessel bound for any port of the United States, under a proper construction of section 2773; she was not bound to make entry at any custom-house before attempting to depart from the place where she was anchored.

The decree of the district court is reversed, and the cause is remanded, with instructions to dismiss the libel of information.

A true copy.

Attest: J. M. McKee, *Clerk.*

PROPOSED AMENDMENT TO QUARANTINE LAW.

Attention is invited to the necessity of an amendment to the present quarantine law which shall provide for the quarantine inspection and sanitation of small vessels sailing from Cuba without a bill of health, and coming within the waters of the collection districts of the United States. These vessels do not enter or seek to enter any port of the United States, and therefore are not amenable to the quarantine law. They are, however, a source of danger, inasmuch as they are known to communicate with the shore, and while ostensibly engaged in the pursuit of fishing engage also in smuggling. The crews of these small vessels are frequently recruited in Habana from recently arrived immigrants from Spain, and, being unacclimated, are liable themselves to be attacked with yellow fever and convey the same through illegal traffic to the Florida coast. The following is recommended as an amendment to section 2 of the act of February 15, 1893:

Any vessel sailing from any foreign port without a United States consular bill of health, and arriving within the limits of any collection district of the United States, and not entering or attempting to enter any port of the United States, shall be subject to such quarantine measures as shall be prescribed by regulations of the Secretary of the Treasury, and the cost of such measures shall be a lien on said vessel, to be recovered by proceedings in the proper district court of the United States and in the manner set forth above as regards vessels from foreign ports without bills of health, and entering any port of the United States.

CORRESPONDENCE RELATING TO INSPECTION, AT A PORT OF CALL, OF PASSENGERS INTENDING TO DISEMBARK BEFORE REACHING THE UNITED STATES.

Treasury Department,
Office of the Supervising Surgeon-General, M. H. S.,
Washington, D. C., September 23, 1895.

Sir: I have to transmit herewith a letter from the honorable Secretary of State, dated September 19, inclosing a communication from Mr. D. A. Chambers, representing the Pacific Mail Steamship Company.

This company objects to the action of the United States consul at Osaka and Hiogo, Japan, in requiring passengers to be inspected at Kobe who intend to disembark at Yokohama, said passengers shipping on vessels bound from Hongkong to the United States.

I have to state, that in 1893 the principle was carried out in European ports, calling for the close inspection of passengers, and baggage of all way passengers, when boarding vessels ultimately destined for the United States. If this procedure is not valid it would wholly invalidate the act of February 15, 1893, so far as it relates to the enforcement of proper sanitary conditions on board vessels at foreign ports when bound for the United States. There is no question in my mind of the necessity as well as the right of the United States consuls at ports of "call" to enforce sanitary regulations with regard to persons and merchandise, even though the same persons and merchandise may expect to leave the vessel before reaching the United States; but I have respectfully to request an expression of your opinion as to the legality of this measure.

I have the honor to remain, respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Hon. SOLICITOR OF THE TREASURY.
(Through the Acting Secretary of the Treasury.)

Opinion of the Solicitor of the Treasury in re inspection of way passengers at Kobe.

DEPARTMENT OF JUSTICE,
OFFICE OF THE SOLICITOR OF THE TREASURY,
Washington, D. C., September 26, 1895.

SIR: I am in receipt of a letter from Dr. Walter Wyman, Supervising Surgeon-General Marine-Hospital Service, transmitting a letter from the honorable Secretary of State, dated September 19, and its inclosures, a letter from Mr. D. A. Chambers, representing the Pacific Mail Steamship Company.

The company, it appears, object to the action of the United States consul at Osaka and Hiogo, Japan, in requiring passengers to be inspected at Kobe who intend to disembark at Yokohama, said passengers shipping on vessels bound from Hongkong to the United States.

Such appears to have been the requirement of that service since the act of February 15, 1893, went into effect.

My opinion is requested as to whether this regulation is authorized by the statute.

The first section of the act of February 15, 1893, prescribes that it shall be unlawful for any merchant ship or vessel from any foreign port or place to enter any port of the United States, except in accordance with the provisions of said act and with such rules and regulations of State or municipal health authorities as may be made in pursuance thereof.

Section 2 further prescribes that any vessel of any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the vessel, its cargo, passengers, and crew.

Section 3 provides that the Secretary of the Treasury shall make such rules and regulations as shall be necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place to any port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers, and crew.

The regulations made in pursuance of this act appear to be consistent with its intention.

For the protection of the through passengers, and the people of this country, it is as important that the "way" passengers, or those who are to stop at intermediate ports, should be inspected. Otherwise, the passengers bound for the United States would always be in danger of contagious and infectious diseases from such uninspected passengers. If persons who take local passage from Kobe to Yokohama, for instance, are exempt from inspection under the law, then for the same reason a ship load of passengers could, without inspection, be brought from Kobe, or some other eastern port, to a Canadian port, on a vessel coming to the United States.

The statute does not discriminate between passengers bound to a port of the United States and those who embark for an intermediate port; and I am, therefore, of the opinion that the practice under the regulations of the Secretary requiring the inspection of passengers who intend to disembark at Yokohama, or any other intermediate port, from a vessel bound to the United States, is authorized by the statute.

The papers submitted are herewith returned.

Very respectfully, F. A. Reeve, *Solicitor.*

Hon. John G. Carlisle,
Secretary of the Treasury.

DISINFECTION OF BAGGAGE ARRIVING FROM ORIENTAL PORTS AT PORTS ON THE PACIFIC COAST.

[Circular.]

Treasury Department, Office of the Secretary,
Washington, D. C., September 7, 1895.

To medical officers of the Marine-Hospital Service, consular officers, collectors of customs, State and local quarantine officers, steamship companies, and others concerned:

On account of the officially reported prevalence of cholera in Hongkong and Yokohama, and other Chinese and Japanese ports, and in Honolulu, attention is called to Article V of the Quarantine Regulations, Treasury Department, to be observed at foreign ports, issued April 26, 1894.

No special provision having been reported from these ports for proper disinfection of suspected baggage, it is hereby ordered on recommendation of the Surgeon-General of the Marine-Hospital Service, that all unlabeled baggage of steerage passengers, including hand baggage, and all labeled baggage of said passengers, which in the opinion of the quarantine officer should be disinfected or redisinfected, arriving from oriental ports, including ports of Hawaii, at any port in the State of Oregon, Washington, or California, shall be disinfected as provided in Article VII of the Quarantine Regulations for domestic ports, before being landed.

This regulation will also apply to any other baggage which the quarantine officer may suspect of being infected.

C. S. Hamlin, *Acting Secretary.*

CONSULAR BILLS OF HEALTH.

[Circular.]

Treasury Department,
Washington, D. C., December 8, 1894.

To Collectors of Customs and others:

Circular 106 of 1894 is modified to read:

You are directed to notify the Secretary of the Treasury promptly of the arrival at your port of any vessel from a foreign port without the consular bill of health prescribed by the quarantine act of February 15, 1893, and to state the port of clearance of the vessel, and any ports of call, with the dates of each, number and class of passengers, general nature of cargo, and the present sanitary condition of the vessel as reported by the quarantine or health authorities for your port.

You will also transmit therewith the master's application for relief from penalty incurred and reasons for failure to produce the required bill of health, your judgment of their validity, and report any circumstances essential for the guidance of the Department in considering the application.

A bill of health from a United States consul or consular officer is not required from ports at which there are no United States consuls or consular officers. For your instruction a list of the ports at which United States consuls or consular officers are stationed is appended.

J. G. CARLISLE, *Secretary.*

List of consular offices.

Aarau, Switzerland.
Aberdeen, Scotland.
Abo, Finland.
Acajutla, Salvador.
Acapulco, Mexico.
Adelaide, Australia.
Aden, Arabia.
Aguadilla, Puerto Rico.
Aix la Chapelle, Germany.
Akyab, Bengal.
Albany, Australia.
Alberton, Prince Edward Island.
Albert Town, West Indies.
Aleppo, Syria.
Alexandretta, Syria.
Alexandria, Egypt.
Algeciras, Spain.
Algiers, Algeria, Africa.
Alicante, Spain.
Almeria Malaga, Spain.
Amapala, Honduras.
Amherstburg, Ontario.
Amoy, China.
Amsterdam, Netherlands.
Ancona, Italy.
Andakabe, Madagascar.
Angers, France.
Anguilla, West Indies.
Annaberg, Germany.
Annapolis, Nova Scotia.
Antigonish, Nova Scotia.
Antigua, West Indies.
Antofagasta, Chile.
Antwerp, Belgium.
Apia, Samoa.
Aracaju, Brazil.
Archangel, Russia.
Arecibo, Puerto Rico.
Arendal, Norway.
Arica, Chile.
Arichat, Nova Scotia.
Arthabaska, Quebec.
Assioot, Egypt.
Assouan, Egypt.
Asuncion, Paraguay.
Athens, Greece.
Athlone, Ireland.
Auckland, New Zealand.
Augsburg, Germany.
Aux Cayes, Haiti.
Azua, Santo Domingo.
Bagdad, Turkey.
Bahia Blanca, Argentina.
Bahia, Brazil.
Bahia de Caráquez, Ecuador.
Ballymena, Ireland.
Bamberg, Germany.
Bangkok, Siam.
Baracoa, Cuba.
Barbados, West Indies.
Barcelona, Spain.
Barcelona, Venezuela.
Bari, Italy.
Barmen, Germany.
Barnsley, England.
Barranquilla, Columbia.
Barrie, Ontario.
Barrington, Nova Scotia.
Basle, Switzerland.
Bassein, India.
Bastia, France.
Batavia, Java.
Bathurst, Africa.
Bathurst, New Brunswick.
Batoum, Russia.
Beira, Africa.
Beirut, Syria.
Belfast, Ireland.
Belgrade, Servia.
Belize, British Honduras.
Belleville, Ontario.
Beni-Saf, Africa.
Beni-Souef, Egypt.
Bergen, Norway.
Berlin, Germany.
Bermuda, West Indies.
Berne, Switzerland.
Bilbao, Spain.
Birmingham, England.
Black River, Jamaica.
Bloemfontein, Orange Free State.
Bluefields, Nicaragua.
Bocas del Toro, Colombia.
Bogota, Colombia.
Bologna, Italy.
Boma, Kongo State.
Bombay, India.
Bonacca, Honduras.
Bone, Africa.
Bordeaux, France.
Boulogne-sur-mer, France.
Bradford, England.
Brake and Nordenhamm, Germany.
Brava, Cape Verde Islands.
Bremen, Germany.
Breslau, Germany.
Brest, France.
Bridgewater, Nova Scotia.
Brisbane, New South Wales.
Bristol, England.
Brockville, Ontario.
Brunn, Austria.
Brunswick, Germany.
Brussels, Belgium.
Bucaramauga, Colombia.
Bucharest, Roumania.
Budapest, Hungary.
Buen Ayre, West Indies.
Buenos Ayres, Argentina.
Bushire, Persia.
Cadiz, Spain.
Cagliari, Italy.
Cairo, Egypt.
Calais, France.
Calcutta, Bengal, India.
Caldera, Chile.
Callao, Peru.
Camargo, Mexico.
Campbellton, New Brunswick.
Campeachy, Mexico.
Campobello Island, New Brunswick.
Candia, Crete.
Cannes, France.
Canton, China.
Cape Canso, Nova Scotia.
Cape Coast Castle, Liberia.
Cape Haitien, Haiti.
Cape Town, Africa.
Caracas, Venezuela.
Cardenas, Cuba.
Cardiff, Wales.
Carleton Place, Ontario.
Carlisle, England.
Carrara, Italy.
Carril, Spain.
Cartagena, Colombia.
Carthagena, Spain.
Carupano, Venezuela.
Casa-Blanca, Morocco.
Cassel, Germany.
Castellamare di Stabia, Italy.

List of consular offices—Continued.

Catania, Italy.
Caudry, France.
Cayenne, French Guiana.
Ceara, Brazil.
Cebu, Philippine Islands.
Ceiba, Honduras.
Cette, France.
Ceylon, India.
Champerico, Guatemala.
Charleroi, Belgium.
Charlottetown, Prince Edward Island.
Chatham, Ontario.
Chaux-de-Fonds, Switzerland.
Chefoo, China.
Chemnitz, Germany.
Cherbourg, France.
Chiclayo, Peru.
Chihuahua, Mexico.
Chin Kiang, China.
Chittagong, India.
Christ Church, New Zealand.
Christiania, Norway.
Christiansand, Norway.
Christiansted, West Indies.
Cienfuegos, Cuba.
Ciudad Bolivar, Venezuela.
Ciudad Porfirio Diaz, Mexico.
Civita Vecchia, Italy.
Clarenceville, Quebec.
Clifton, Ontario.
Clinton, Ontario.
Coaticook, Quebec.
Coatzacoalcos, Mexico,
Coburg, Germany.
Cockburn Harbor, West Indies.
Cognac, France.
Collo, Algeria, Africa.
Cologne, Germany.
Collingwood, Ontario.
Colon (Aspinwall), Colombia.
Colonia, Uruguay.
Constantinople, Turkey.
Cookshire, Quebec.
Copenhagen, Denmark.
Coquimbo, Chile.
Corcubion, Spain.
Cordoba, Argentina.
Corfu, Ionian Isles, Greece.
Corinto, Nicaragua.
Cork (Queenstown), Ireland.
Cornwall, Ontario.
Cornwallis, Nova Scotia.
Coro, Venezuela.
Coronel, Chile.
Corunna, Spain.
Coteau, Quebec.
Courtwright, Ontario.
Crefeld, Germany.
Cronstadt, Russia.
Cucuta, Colombia.
Cumana, Venezuela.
Curaçao, West Indies.
Damascus, Syria.
Danzig, Germany.
Dardanelles, Turkey.
Dartmouth, England.
Deloraine, Manitoba.
Demerara, British Guiana.
Denia, Spain.
Derby, England.
Deseronto, Ontario.
Desterro, Brazil.
Dieppe, France.
Digby, Nova Scotia.
Dijon, France.
Dominica, West Indies.
Dover, England.
Dresden, Germany.
Drontheim, Norway.
Dublin, Ireland.
Dundee, Scotland.
Dunedin, New Zealand.
Dunfermline, Scotland.
Dunkirk, France.
Dunmore Town, West Indies.
Durango, Mexico.
Durban, Africa.
Dusseldorf, Germany.
Dyrefjord, Iceland.
East London, Africa.
Eibenstock, Germany.
Elsinore, Denmark.
Emerson, Manitoba.
Ensenada, Mexico.
Esmeraldas, Ecuador.
Essen, Germany.
Fajardo, Puerto Rico.
Falmouth, England.
Falmouth, Jamaica, West Indies.
Farnham, Quebec.
Faro, Portugal.
Fayal, Azores.
Ferrol, Spain.
Fiume, Hungary.
Flensburg, Germany.
Florence, Italy.
Flores, Azores.
Flushing, Netherlands.
Fogo, Cape Verde Islands.
Fort Erie, Ontario.
Frankfort-on-the-Main, Germany.
Fredericksted, West Indies.
Fredericton, New Brunswick.
Frelighsburg, Quebec.
Freemantle, Australia.
Freiburg, Baden, Germany.
Frontera, Mexico.
Fuchau, China.
Funchal, Madeira.
Fürth, Germany.
Galashiels, Scotland.
Galt, Ontario.
Gananoque, Quebec.
Garita Gonzales, Mexico.
Garrucha, Spain.
Gaspé Basin, Quebec.
Geestemunde, Germany.
Geneva, Switzerland.
Genoa, Italy.
Georgetown, Prince Edward Island.
Gera, Germany.
Ghent, Belgium.
Gibara, Cuba.
Gibraltar, Spain.
Gijon, Spain.
Gioja, Italy.
Girgenti, Italy.
Glasgow, Scotland.
Glauchau, Germany.
Gloucester, England.
Goderich, Ontario.
Gonaives, Haiti.
Gorée-Daker, Africa.
Gothenberg, Sweden.
Governors Harbor, West Indies.
Graciosa, Azores.
Granada, Spain.
Grand Canary, Canary Islands.
Grand Manan, New Brunswick.
Grao, Spain.
Greenock, Scotland.
Green Turtle Cay, West Indies.
Grenada, West Indies.
Grenoble, France.
Grenville, Quebec.
Gretna, B. N. A.
Guadeloupe, West Indies.
Guanajuato, Mexico.
Guantanamo, Cuba.
Guatemala, Central America.
Guayama, Puerto Rico.
Guayaquil, Ecuador.
Guaymas, Mexico.
Guben, Germany.
Guelph, Ontario.
Guernsey, Great Britain.
Habana, Cuba.
Haida, Austria.
Haifa, Syria.
Halifax, Nova Scotia.
Hamburg, Germany.
Hamilton, Ontario.
Hankow, China.
Hanover, Germany.
Havre, France.
Helsingborg, Sweden.
Helsingfors, Finland.
Hemmingford, Quebec.
Hereford, Quebec.
Hinchinbrook, Quebec.
Hilo, Hawaiian Islands.
Hobart, Tasmania.
Hochelaga and Longueuil, Quebec
Hodeida, Arabia.
Holyhead, England.
Honda, Colombia.
Honfleur, France.
Hongkong, China.
Honolulu, Hawaiian Islands.
Horgen, Switzerland.

List of Consular Offices—Continued.

Huddersfield, England.
Huelva, Spain.
Hull, England.
Huntingdon, Quebec.
Iloilo, Philippine Islands.
Innsbruck, Austria.
Iquique, Chile.
Jacmel, Haiti.
Jaffna, Ceylon, India.
Jaluit, Marshall Islands.
Jeremie, Haiti.
Jeres de la Frontera, Spain.
Jersey, Great Britain.
Jerusalem, Syria.
Johannesberg, Africa.
Kahului, Hawaiian Islands.
Kalamata, Greece.
Kanagawa, Japan.
Karachi, India.
Kehl, Germany.
Kempt, Nova Scotia.
Keneh, Egypt.
Kidderminster, England.
Kiel, Germany.
Kimberly, Africa.
Kingston, Jamaica.
Kingston, Ontario.
Kirkcaldy, Scotland.
Königsberg, Germany.
La Colle, Quebec.
La Guayra, Venezuela.
Laguna de Terminos, Mexico.
La Libertad, San Salvador.
Langen Schalbach, Germany.
Lanzarotte, Canary Islands.
La Paz, Bolivia.
La Paz, Mexico.
Laraiche, Morocco.
Launceston, Tasmania.
La Union, San Salvador.
Leeds, England.
Leghorn, Italy.
Leicester, England.
Leipsic, Germany.
Leith, Scotland.
Lethbridge, Manitoba.
Levuka, Fiji.
Libau, Russia.
Licata, Italy.
Liege, Belgium.
Lille, France.
Limerick, Ireland.
Limoges, France.
Lindsay, Ontario.
Lineboro, Quebec.
Lisbon, Portugal.
Liverpool, England.
Liverpool, Nova Scotia.
Livingston, Guatemala.
Llanelly, Wales.
Loanda, Africa.
London, England.
London, Ontario.
Londonderry, Ireland.
Lorenzo Marquez, Africa.
L'Orient, France.
Lubec, Germany.
Lucerne, Switzerland.
Lunenburg, Nova Scotia.
Lurgan, Ireland.
Luxemburg, Grand Duchy of.
Luxor, Egypt.
Lyons, France.
Macaome, Honduras.
Macassar, Celebes.
Maceio, Brazil,
Macoris, Santo Domingo.
Madras, British India.
Madrid, Spain.
Magdalen Islands, Canada.
Magdalena Bay, Mexico
Magdeburg, Germany.
Mahukona, Hawaiian Islands.
Majonga, Madagascar.
Malaga, Spain.
Malmo, Sweden.
Malta, Malta Island.
Manaōs, Brazil.
Managua, Nicaragua.
Manchester, England.
Manila, Philippine Islands.
Mannheim, Germany.
Mansourah, Egypt.
Manta, Ecuador.
Manzanillo, Cuba.
Maracaibo, Venezuela.
Maranhão, Brazil.
Markneukirchen, Germany.
Marsala, Italy.
Marseilles, France.
Martinique, West India.
Maskat, Arabia.
Matamoras, Mexico.
Matanzas, Cuba.
Mathewtown, West Indies.
Mayaguez, Puerto Rico.
Mayence, Germany.
Mazagan, Morocco.
Mazatlan, Mexico.
McAdam Junction, New Brunswick.
Medelin, Colombia.
Megantic, Quebec.
Melbourne, Australia.
Mentone, France.
Merida, Mexico.
Mersine, Syria.
Messina, Italy.
Mexico, Mexico.
Mier, Mexico.
Milan, Italy.
Milazzo, Italy.
Milford Haven, Wales.
Milk River, Jamaica.
Miragoane, Haiti.
Mogador, Morocco.
Mollendo, Peru.
Monaco, France.
Moncton, New Brunswick.
Monganui, New Zealand.
Monrovia, Liberia.
Monte Christi, Santo Domingo.
Montego Bay, Jamaica, West Indies.
Monterey, Mexico.
Montevideo, Uruguay.
Montreal, Quebec.
Montserrat, West Indies.
Morrisburg, Ontario.
Moscow, Russia.
Moulmein, India.
Mozambique, Africa.
Munich, Germany.
Mytilene, Turkey.
Nagasaki, Japan.
Naguabo, Puerto Rico.
Nanaimo, British Columbia.
Nantes, France.
Napanee, Ontario.
Naples, Italy.
Nassau, West Indies.
Natal, Brazil.
Neustadt, Germany.
Nevis, West Indies.
Newcastle-upon-Tyne, England.
Newcastle, New South Wales.
Newcastle, New Brunswick.
Newport, Wales.
Nice, France.
Ningpo, China.
Niuchwang, China.
Nogales, Mexico.
Norfolk Island, New South Wales.
North Bay, Canada.
Nottingham, England.
Nouméa, New Caledonia.
Nuevitas, Cuba.
Nuevo Laredo, Mexico.
Nuremburg, Germany.
Ocos, Guatemala.
Odessa, Russia.
Old Hartlepool, England.
Oporto, Portugal.
Orotava, Canary Islands.
Oran, Algeria, Africa.
Orillia, Ontario.
Osaka and Hiogo, Japan.
Oshawa, Ontario.
Ottawa, Ontario.
Owen Sound, Ontario.
Padang, Sumatra.
Pago Pago, Samoa.
Paita, Peru.
Palermo, Italy.
Palma Majorca, Spain.
Palmerston, Ontario.
Panama, Colombia.
Para, Brazil.
Paramaribo, Dutch Guiana.
Paris, Ontario.
Paris, France.
Parrsboro, Nova Scotia.

List of Consular Offices—Continued.

Parry Sound, Ontario.
Paso del Norte, Mexico.
Paspebiac, Quebec.
Patras, Greece.
Pau, France.
Paysandu, Uruguay.
Penang, India.
Perigueux, France.
Pernambuco, Brazil.
Peterboro, Ontario.
Petit Goâve, Haiti.
Picton, Ontario.
Pictou, Nova Scotia.
Piedras Negras, Mexico.
Piræus, Greece.
Piura, Peru.
Plauen, Germany.
Plymouth, England.
Point de Galle, India.
Point Levi, Quebec.
Ponce, Puerto Rico.
Port Antonio, Jamaica, West Indies.
Port Arthur, Manitoba.
Port au Prince, Haiti.
Port de Paix, Haiti.
Port of Marabella, Spain.
Port Elizabeth, South Africa.
Port Hawkesbury and Mulgrave, Nova Scotia.
Port Hope, Ontario.
Port Joggins, Nova Scotia.
Port Limon, Costa Rica.
Port Louis, Mauritius.
Port Mahon, Spain.
Port Maria, West Indies.
Port Morant, West Indies.
Porto Alegre, Brazil.
Port Rowan, Ontario.
Port Said, Egypt.
Port St. Mary's, Spain.
Port Sarnia, Ontario.
Portsmouth, England.
Portsmouth, West Indies.
Port Stanley, Falkland Islands.
Port Stanley and St. Thomas, Ontario.
Potton, Quebec.
Prague, Austria.
Prescott, Ontario.
Progreso, Mexico.
Puerto Cabello, Venezuela.
Puerto Cortez, Honduras.
Puerto Plata, Santo Domingo.
Pugwash and Wallace, Nova Scotia.
Punta Arenas, Costa Rica.
Quebec, Canada.
Rabat, Morocco.
Rangooon, Burmah.
Rat Portage, Ontario.
Redditch, England.
Reichenberg, Austria.
Rennes, France.
Revel, Russia.
Rheims, France.
Richibucto, New Brunswick.
Riga, Russia.
Rio de Janeiro, Brazil.
Rio Grande do Sul, Brazil.
Rio Hacha, Colombia.
Ritzebüttel and Cuxhaven, Germany.
Rodi, Italy.
Rome, Italy.
Ronne, Denmark.
Rosario, Argentina.
Rostoff and Taganrog, Russia.
Rotterdam, Netherlands.
Roubaix, France.
Rouen, France.
Ruatan, Honduras.
Saffi, Morocco.
Sagua la Grande, Cuba.
Saigon, Cochin China.
Salonica, Turkey.
Salt City, West Indies.
Saltillo, Mexico.
Samana, Santo Domingo.
Samarang, Java.
San Benito, Mexico.
San Cristobal, Venezuela.
San Felin de Guixols, Spain.
San Jorge, Azores.
San José, Costa Rica.
San José and Cape St. Lucas, Mexico.
San José de Guatemala.
San Juancinto, Honduras.
San Juan de los Remedios, Cuba.
San Juan del Norte, Nicaragua.
San Juan del Sur, Nicaragua.
San Juan, Puerto Rico.
San Luis Potosi, Mexico.
San Pedro Sula, Honduras.
San Remo, Italy.
Santa Anna, Salvador.
Santa Cruz, Cuba.
Santa Cruz Point, Mexico.
Santa Marta, Columbia.
San Salvador.
San Sebastian, Spain.
Santander, Spain.
Santiago, Cape Verde Islands.
Santiago, Cuba.
Santo Domingo, West Indies.
Santos, Brazil.
Sault Ste. Marie, Ontario.
Savannah la Mar, West Indies.
Scarboro, West Indies.
Scheidam, Netherlands.
Scilly Islands, England.
Seôul, Korea.
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Torrevieja, Spain.
Toulon, France.
Tovar, Venezuela.
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Trapani, Italy.
Trebizond, Turkey.
Trenton, Ontario.
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Trinidad, West Indies.
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Troon, Scotland.
Troyes, France.
Truxillo, Honduras.
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Tunis, Africa.
Tunstall, England.
Turin, Italy.
Turks Island, West Indies.
Tuxpan, Mexico.
Union, British Columbia.
Utilla, Honduras.
Valera, Venezuela.
Valparaiso, Chile.
Valencia, Venezuela.
Vancouver, British Columbia.
Venice, Italy.
Vera Cruz, Mexico.
Verviers, Belgium.
Vevey, Switzerland.
Victoria, Brazil.
Victoria, British Columbia.
Victoria, Mexico.
Viequez, Puerto Rico.
Vienna, Austria.
Vigo, Spain.
Vivero, Spain.
Volo, Greece.
Wallaceburg, Ontario.
Warsaw, Russia.
Waterford, Ireland.
Waterloo, Quebec.
Waubaushene, Ontario.
Weimar, Germany.
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Wiarton, Ontario.
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Windsor, Nova Scotia.
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DISINFECTION OF RAGS.

The following correspondence is inserted, showing the efforts made to annul the Treasury Regulations, which now require disinfection of all rags prior to their shipment to the United States. It may be remarked that the United States Government was not represented in the International Sanitary Conference at Dresden in 1893, and that the conditions concerning the rag trade are entirely different in the United States from those existing in France—the latter country being a large exporter of rags, the United States exporting none, but importing large quantities:

CONSULAT-GÉNÉRAL DE FRANCE À NEW-YORK,
New York, August 23, 1895.

DEAR SIR: Although I have not the honor of your personal acquaintance, may I apply to your courteous assistance which may, I am sure, be of great service to the trade of both countries, yours and mine.

This office has received a great many applications from dealers in drills and rags for either paper stock or shoddy. They complain that their trade is much impeached by such regulations that make it obligatory for them to have the stuff they need over here treated in France by methods of disinfection that put them to a great deal of trouble and a great layout of money. They claim that with the system of packing now in use, with iron hoops under hydraulic pressure, the danger of spreading any contagious disease does not exist.

I have submitted the matter to the attention of the French Government, and I was glad to learn, in an official communication that I received yesterday, that after due consideration of the subject, it has been decided by the French custom service to do away with the inconveniences complained of.

It has been found that such methods of disinfection by dipping in boiling water, by exposing to steam water, or to the fumes of "acide sulfureux or sulphydrique" are more detrimental to the trade than useful to the public health, and have for effect the destruction of the trade, in preventing the shipping of the goods or in making them too obnoxious or too expensive. The French national board of health, to which the question was submitted, think that seldom diseases are spread by rags and drills. Only two or three instances of transmission of cholera were ever quoted, and even then Dr. Robert Koch has proved that said instances were not clearly established. So much so, that the International Sanitary Congress, held at Dresden in 1893, did not find any objection against the free circulation of drills and rags compressed by hydraulic power with iron ties. Of course, there is not even the least question about drills and waste, all new, coming directly from factories.

By a proclamation, dated June 22, the President of the French Republic has decided that hereafter such drills and rags as are packed under hydraulic pressure with iron ties would be admitted freely in our ports and harbors without any previous disinfection, and the same freedom is granted to fresh waste, in any form of packing, coming directly from the factories. You will find herewith inclosed said regulation as printed for the use of our customs service.

Under such circumstances, would you not feel at liberty to study, take, or suggest to the proper authorities any measure that would help the American dealers in this country as they are now helped in our own? Our Government has done its best to serve the interests of that important line of business. The manufacturers of shoddy, the paper mills would be most grateful to you if you could allow them to bring in at the least possible expense and trouble raw materials which are much needed over here and which would increase the present activity of the mills to the advantage of laboring classes.

Hoping to hear of you at your earliest convenience, and most willing to do anything you would suggest to the aim the French Government and I have in view, I have the honor to be, sir, with kindest regards,

Your obedient servant,

EDMOND BRUWAËRT,
French Consul-General.

WALTER WYMAN,
Surgeon-General Marine-Hospital Service, Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 25, 1895.

SIR: In reply to your letter of the 23d instant, inclosing a decree of the French Republic, permitting the admission, without disinfection, into all the ports of France, of rags compressed by hydraulic force and packed according to regulation, you are respectfully informed that no change will be made in the requirements for disinfection of these articles in the quarantine regulations of the United States Government, a copy of which is inclosed for your information.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

CONSUL-GENERAL OF FRANCE,
35 South William street, New York, N. Y.

QUARANTINE SYSTEM OF THE UNITED STATES.

In discussing the quarantine system of the United States as it at present exists, it will be pertinent to refer to it (1) as a system in comparison with that of other Governments, and (2) as a system in its relation to the home Government. In very recent years the principle and practice of quarantine have been attacked from time to time both in the secular and medical press, chiefly by those who have a greater belief in the principle of sanitation of cities. Much harm might be done by these attacks if they made any serious impression, as they might lead to a belief in the inefficiency or uselessness of quarantine restraints. Some good has resulted, however, by calling attention to the necessity of municipal sanitation. Frequently the English position on quarantine is quoted, as though it were greatly in advance of the ideas prevailing in the United States, but investigation will show that the same principles are recognized in both countries, the different methods being due to difference of conditions.

There is probably no quarantine officer who would not be glad to see such conditions of sanitation everywhere as would obviate the necessity of any quarantine restraints. When all cities are supplied with proper sewerage and drainage, and perfect water supply, quarantine will be scarcely more than a name. But this ideal condition does not exist, and to the practical worker, to the men who are responsible for the immediate safety of the people, quarantine restrictions are as essential as are coast defenses against military invasion.

Referring now to the United States Quarantine Regulations, and not to absurd and unnecessary restraints which may be imposed occasionally under State and local authority, and which the United States Government has at present no legal right to prevent, an examination will show that the system of this Government, founded upon science, experience, and common sense, differs but slightly from that of England. I quote the following from the twenty-second annual report of the medical officer of the local government board of that country for the years 1892 and 1893, p. XXV:

> The system of cholera prevention which has been in operation in England for some forty years, and the details of which have for the past twenty years been largely embodied in the cholera regulations issued by the board, have the following objects in view:
>
> Port and riparian sanitary authorities have imposed on them the duty of so dealing with ships, either infected with cholera or arriving from places infected with cholera, that the sick shall be placed in hospital; that those suspected of cholera shall be detained for a limited period, so that the nature of their illness may be ascertained; that certain sanitary measures, such as the efficient disinfection of vessels, shall be carried out, and that, prior to the landing of healthy persons, their addresses at the places of destination to which they are traveling, shall be obtained.
>
> Should cholera succeed in passing this outer line of defense, the board trust for the prevention of its spread to the general sanitary administration of the country. Sanitary districts, to which the hitherto healthy passengers are traveling, have communicated to them the addresses of these persons; the system of cumpulsory notification of infectious disease (very generally in operation) supplies to each local authority immediate means of ascertaining whether any cholera has developed in their district; and, cholera having been discovered within their jurisdiction, inland sanitary authorities have a corresponding duty to that devolving on port authorities.

A study of the quarantine regulations for domestic ports of the United States will show that they are founded upon the above-mentioned principles. The period of detention in quarantine may in a few instances be longer; that, however, is a matter of regulation. The English system has the advantage of compulsory notification of infectious diseases. A similar system, however, prevails in the United States with relation to epidemic diseases. Thus, at the port of New York, by arrangement with the immigration commissioner, the destination of all immigrants arriving on a vessel which has had contagious disease on board is noted, and the health officer for the State in which they are to arrive is notified by telegraph. In the Weekly Abstract of Sanitary Reports, published by the Marine-Hospital Bureau, and transmitted to local quarantines and health authorities, the same facts are noted. Upon the appearance of any epidemic disease in the United States, information is telegraphed from the Marine-Hospital Bureau to all portions of the country which may be infected thereby; and, besides, there exists a system of voluntary notification between the State health authorities of the several States. It should be stated also that in certain English possessions, as at Malta and Gibraltar, where more rigid quarantine seems to be necessary and practicable, such forms of quarantine are enforced. It may be said that the quarantine requirements of the United States are peculiar:

First. Because of the large number of immigrants arriving in our northern ports; and,

Second. Because of the proximity of our southern ports to the yellow fever infected ports of the West Indies, and the liability of our Southern cities to hold and germinate the infection of yellow fever when once introduced.

In one important feature the quarantine system of the United States differs from and is superior to that of any other nation, viz, the precautions required to be taken by vessels at foreign ports. The good effect of this provision of the law of February 15, 1893, and of the Regulations of the Treasury Department made thereunder, can hardly be overestimated. It is not too much to say that these regulations have had a wholesome sanitary effect upon the whole civilized world. The leading steamship companies are themselves voluntarily taking measures to prevent at the foreign ports the shipment of persons or cargoes liable to convey infection, and I am informed that in the recent Sanitary Conference held at Paris the Regulations of the Treasury Department of the United States, relative to the precautionary measures concerning immigrants, were of much value in the preparation of requirements adopted by that congress regarding precautionary measures to be imposed upon cholera-bearing pilgrims.

Mention should be made here of the fact that in 1893, as the danger from cholera extension to the United States gradually disappeared, the Department was notified that objection was being made by certain foreign Governments, through their ministers, to the presence of the medical officers detailed at foreign ports under the provisions of the act of February 15, 1893. These objections were not urged because, on inquiry, the foreign ministers learned that it was the intention of the Bureau to withdraw these officers within a short time, their services being no longer required at the consulates.

A STRICTLY NATIONAL QUARANTINE.

Attention is respectfully invited to the fact that there appears to be a growing sentiment in several sections of the United States for the undivided control of all the quarantine service by the National Government. Since the passage of the act of February 15, 1893, the subject of turning over the local quarantines to the National Government has been favorably discussed by the authorities of Portland, Me., Savannah, Charleston, and Mobile. Two States, namely, Pennsylvania and North Carolina, have practically surrendered their quarantine functions to the Government. A bill was introduced into the last legislature of Florida, turning over the quarantine system of the State to the General Government, and many communications were printed in certain Florida papers favoring this change. The leading daily journals of Texas have advocated a like change with regard to the quarantine of their own State, and, as previously stated, the National Government now exercises quarantine control over the whole of the Pacific Coast, the Gulf Coast east of Louisiana to Mobile Bay, in Georgia, North Carolina, Virginia, Delaware, and Pennsylvania.

Section 8 of the quarantine act of February 15, 1893, empowers the Secretary of the Treasury to receive and pay for the use of such local quarantine establishments as may be voluntarily surrendered to the General Government, but there was no appropriation made to carry out the provision of this section. I believe that the General Government should fully exercise the rights given to it by the Constitution and establish a strictly national quarantine. In carrying out such a proposition it would be necessary and economical to establish two forms of quarantine stations—one of inspection only, and the other a station of refuge for the disinfection of infected or suspected vessels and detention of crews or passengers. This measure would result in a relief from the burden of taxation upon commerce. A measure to this effect should include some provision relating to the personnel of the quarantine service, in order that the General Government might avail itself of the experience and knowledge gained by years of service by some of the local quarantine officers. A limited number of these might receive appointments under the Treasury Department for the purpose named, and, in this event, their position should be made to depend upon efficiency and zeal, and should be entirely removed from all political influence.

The arguments for national quarantine have already been made, and are to be found not only in the columns of the daily press and medical journals, but also in the expressions of various mercantile bodies and sanitary authorities, some of which may be enumerated as follows—copies of the same being on file in this Bureau:

First. The report of the special committee of the Chamber of Commerce of the State of New York on quarantine at the port of New York during the cholera of 1892.

Second. The report of the New York Board of Trade on national quarantine, dated January 6, 1893, the conclusion of which is as follows:

> The conclusion of your committee, therefore, is that it is essential to the safety of our people and the protection of their lives that a national quarantine system be established in the United States at the earliest possible day. We believe that to be effective the system adopted must be national, and that any systems maintained at ports of entry under State or local control should not be allowed to conflict or hinder the national system.

Third. Resolutions by the Maritime Exchange of Philadelphia, December 31, 1892.

Fourth. Speech of Dr. Joseph Holt, of New Orleans, on quarantine control delivered before the Chamber of Commerce and Industry in New Orleans, January 11, 1893.

Fifth. Resolutions by the physicians of the State of Illinois on national control of quarantine.

RECOMMENDATIONS CONCERNING PRESENT LAW.

Specific recommendations concerning the present quarantine law are made as follows:

1. The amendment, previously referred to, of section 2 of the act of February 15, 1893, the object of which is to exercise sanitary restraints upon small trading vessels coming from Cuba without a bill of health, and hovering along the Florida coast.
2. Appropriation should be made for the establishment of such quarantines as may be deemed necessary by the Secretary of the Treasury, and for the purpose of carrying into effect section 8 of the quarantine act of February 15, 1893.
3. An amendment providing punishment for false statements by vessels' officers regarding the sanitary condition and history of their vessels.
4. That the Secretary of the Navy be authorized by Congressional enactment to turn over to the use of the Marine-Hospital Bureau, on request of the Secretary of the Treasury, such vessels as are now loaned and in use at the quarantine stations, and such other vessels as may be condemned for naval purposes and are no longer required by the Navy Department.

LEPROSY.

Inclosing this report, I have respectfully to refer to the subject of leprosy, mentioned in the last Annual Report, and to recommend that a suitable site and building be provided for the reception of leprosy patients. This measure would be a boon to State and municipal health authorities which have cases of leprosy occasionally thrown upon them with no adequate provision available for their care. The legislation suggested in the last Annual Report should be secured, but the establishment of a hospital should not wait thereon.

ILLUSTRATIONS.

The illustrations accompanying this report include one-half of the total number of marine hospitals and one-half of the total number of quarantine stations. The remaining hospitals and stations were illustrated in the last annual report.

I have the honor to remain, very respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

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